

# CIO

THE RESOURCE FOR INFORMATION EXECUTIVES

## CIRCUIT CITY REWIRES

Once number one, now number three, the consumer electronics chain tries to reconnect with its customers, more than tripling its IT spending. Will it be enough? Page 32

BY MERIDITH LEVINSON

CIRCUIT CITY CIO **MICHAEL JONES'S** number-one job is to turn the data the chain collects into information it can use.

### OPEN SOURCE

Cendant Travel replaces a \$100 million mainframe with 144 Linux servers... and lives to tell the tale

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### VIEW FROM THE TOP

Southern Company's CFO on how to budget IT as a differentiator, not a utility

Page 68



**Dirk Meyer**  
President, AMD Microprocessor Sector

**Sherry Q. Moore**  
Sun Solaris Kernel Engineer

**John Fowler**  
Sun Network Systems Group EVP



Share the fast lane. The pace of modern-day investing can boggle the mind. And overwhelm the data center. So Sun and AMD are working on faster, next-generation systems for Wall Street. Benchmarks show that Sun Fire™ V40z servers, employing Dual-Core AMD Opteron™

(1) For a complete list of results visit: <http://www.sun.com/v40z/benchmarks.html>

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Beth S. Beasley  
Sun x64 Product Manager

Wall Street Financial Analyst

Marty Seyer  
VP, AMD Microprocessor Sector

processors, deliver world record performance.<sup>1</sup> And dual-core processing helps save money, too. How much? About \$2 million a year in power costs alone.<sup>2</sup> That's what financial firms call a smart investment. The performance is the asset. The network is the computer.<sup>™</sup> Share.

(2) Based on World Wide average cost per kWh of 13 cents for a data center with 1,000 Sun Fire™ V40z servers each with 4 dual-core Opteron™ processors.



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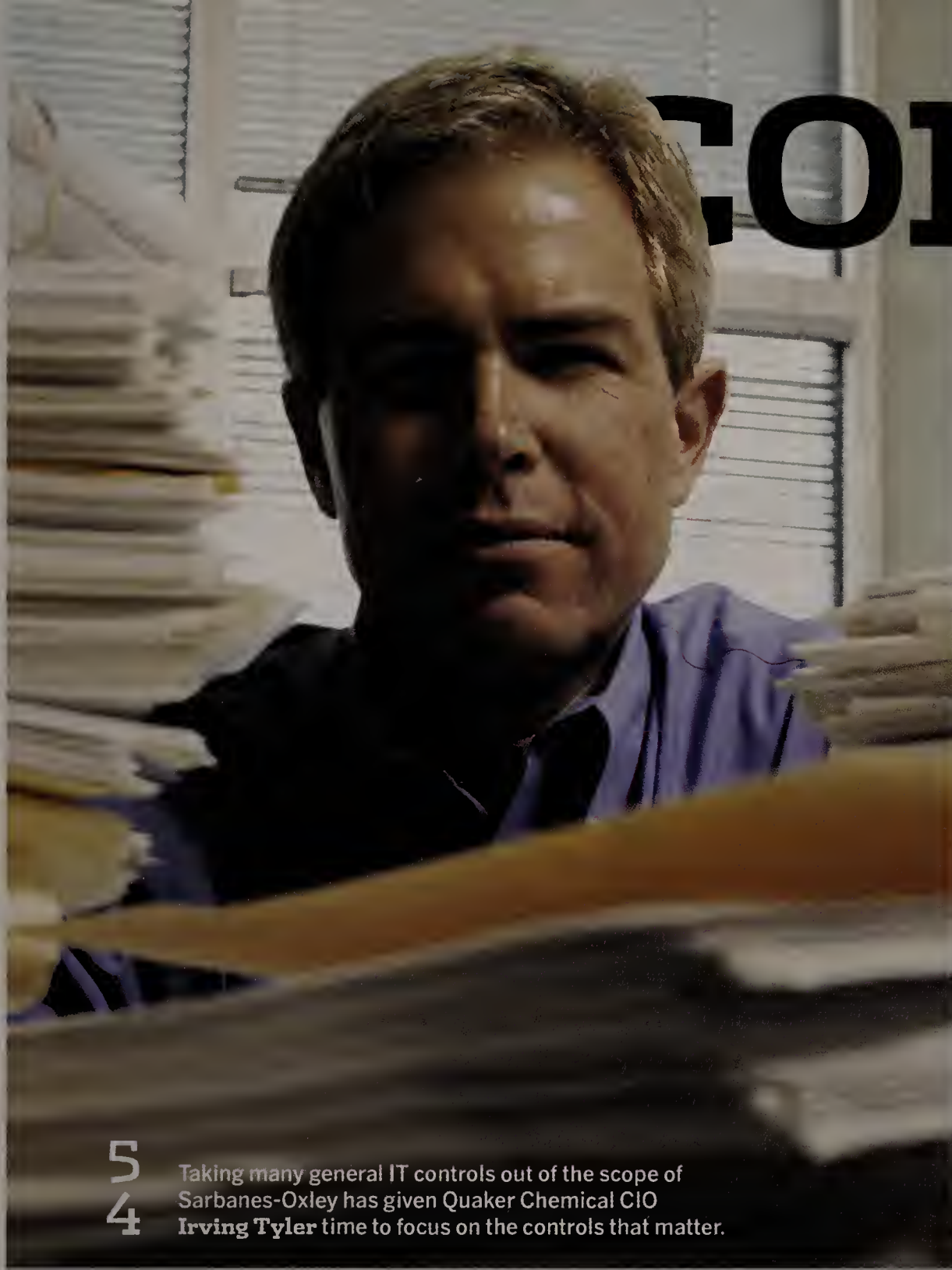
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# Content

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Taking many general IT controls out of the scope of Sarbanes-Oxley has given Quaker Chemical CIO **Irving Tyler** time to focus on the controls that matter.

## Customer Connections

### COVER STORY | CIRCUIT CITY REWIRES | 32

Circuit City is trying to regain its once commanding lead in consumer electronics with a new customer-centric strategy and a heavy investment in IT. But will the turnaround come in time? **Feature by Meridith Levinson**

### RETURN ON CUSTOMER | 40

An excerpt from *Return on Customer*, a new book by Don Peppers and Martha Rogers on why corporate America needs to focus on customer satisfaction, looks closely at Best Buy's winning customer-centric strategy. Read the rest of the chapter in the online version of this feature and at [www.cio.com/070105](http://www.cio.com/070105).

## Compliance and Regulation

### HOW TO DIG OUT FROM UNDER SARBANES-OXLEY | 54

Unless CIOs do Sarbanes-Oxley differently this time, it will cost even more money and cause even more pain. Here's how to avoid all (or at least most) of that.

**Feature by Ben Worthen**

### ADVICE FROM YOUR PEERS | CIO.COM

Learn more about how CIOs can handle year two of Sarbanes-Oxley compliance in this online excerpt of the Sox compliance playbook from the CIO Executive Council. Go to [www.cio.com/070105](http://www.cio.com/070105).

## IT Value

### OPEN SOURCE ASCENDANT | 44

How Cendant Travel Distribution Services replaced a \$100 million mainframe with 144 Linux servers and lived to tell about it.

**Feature by Christopher Koch**

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Southern Company CFO Tom Fanning says it's a mistake to view IT as a cost center. He wants investment in new systems to power the bottom line. **A "View from the Top" interview by Richard Pastore**

**more »**



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**Mickey Lutz** (left) and **Robert Wiseman**, the CIO and CTO for Global Agency Solutions with Cendant Travel Distribution Services, made a successful bet that a critical enterprise application could run on Linux.

## Project Management

### NO CRYSTAL BALL FOR I.T. | 24

Because information technology changes so rapidly and many users don't understand its capabilities, it's hard to envision what the system will look like until you build it.

Column by Rob Austin

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It's not how much you know, it's what you know about your audience. Column by Susan Cramm

### VIEW FROM THE TOP | CIO.COM

What do CEOs and other C-level executives expect from their CIOs? For our archive of "View from the Top" interviews, go to [www.cio.com/specialreports](http://www.cio.com/specialreports).

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## Wh@t's Hot Online

How good is your IT at putting customer insight at the top of your corporate agenda and at the heart of your bottom line? Could it be better? Is your IT a cost center or an investment that delivers the most valuable return in your company? This issue's look at **Circuit City** proves that you'd better take the customer very seriously. To find out how well you're doing, take the **RETURN ON CUSTOMER** quiz at [www.cio.com/070105](http://www.cio.com/070105).

2  
8



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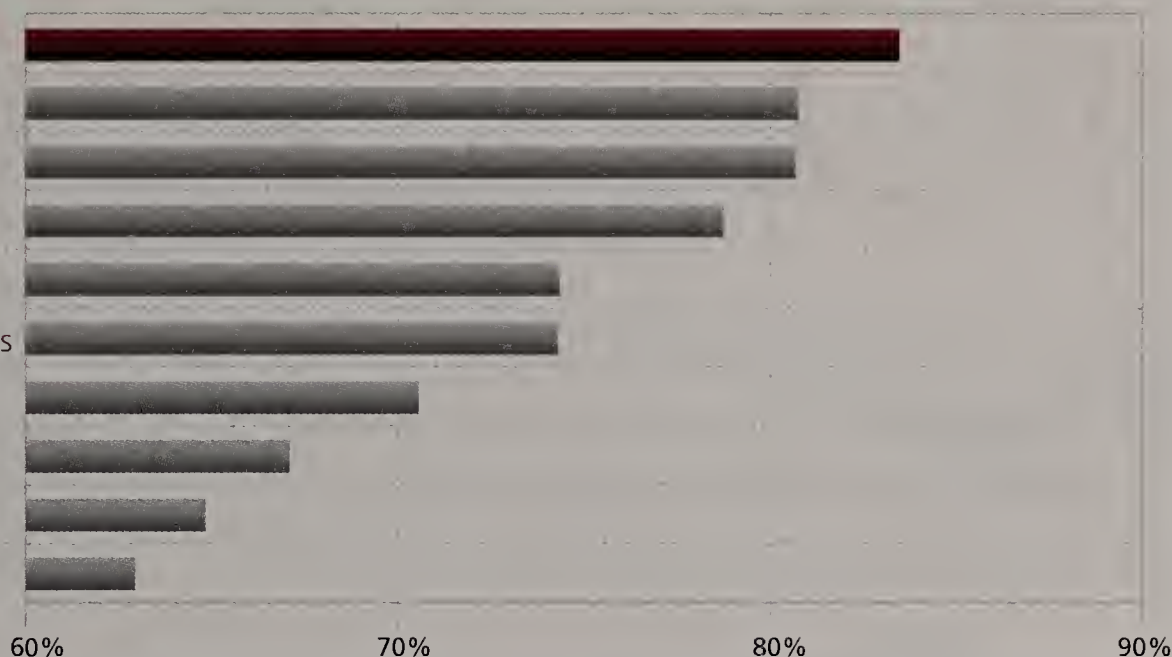
6 Oracle OLAP Servers

7 Business Objects

8 Hyperion Essbase

9 Oracle Discoverer

10 Cognos PowerPlay



The OLAP Survey 4 measures nearly 1,000 customer sites and is the largest independent survey of business intelligence (BI) products. It is conducted annually by Survey.com and industry analyst, Nigel Pendse.

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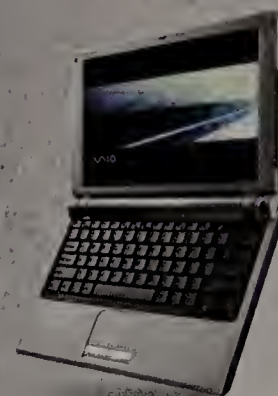
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## Free, But Not Risk-Free

CIOs need to advocate for testing and training when their companies invest in new, less-proven technologies

**It wasn't much more than a year ago** that CIOs at midsize to large organizations were just sniffing around Linux. Articles about actual deployments typically relied on the same few intrepid sources.

Today that's beginning to change. Enterprise rollouts of Linux are popping up like prairie dogs after a threat has passed—cautiously but with a certain eagerness nonetheless. As Executive Editor Christopher Koch notes in “Open Source Ascendant” on Page 44, few CIOs have been ready heretofore to risk their most important applications on a technical infrastructure that most of their peers haven't yet embraced. But the case for Linux is becoming too compelling to ignore. Especially for organizations intent on cutting costs, Linux offers tremendous savings over other platforms. The tricky part for CIOs has been balancing the benefits against the very real risks: a lack of development talent and support, a lack of understanding about just how robust the platform would be, a lack of confidence that SCO wouldn't prevail in its suits.

As Koch puts it: Linux is free, but not risk-free.

Rolling out a major system on a new technology is always fraught with peril. Two things that often get overlooked are providing enough training in time for its deployment and performing enough tests before trusting a critical business operation to it. Why do organizations still fail to build enough testing and training into their systems' rollouts? Because it's expensive.

“When anyone in my position makes a commitment to a new technology, it's not simply the cost of the project, it's the cost of everything moving forward,” says CIO Mickey Lutz, the subject of Koch's profile. “You're retraining people. And so if you have a \$2 million project to implement a Linux system, you're maybe making a \$10 million to \$15 million decision, because you're changing the whole course of IT development—training, support and application development.” As CIO for Global Agency Solutions with Cendant Travel Distribution Services, the parent company of Orbitz and CheapTickets.com, Lutz stood to save multiple millions—from a projected cost of \$100 million over three years with the old platform, down to just \$2.5 million on Linux.

Gaining support for \$10 million just for training and testing is not easy, even projecting such savings. But as more companies emerge from the conservative posture of the past few years and again start investing in new, less-proven technologies, CIOs will have to fight that fight or risk a whole new round of projects gone awry.

**Enterprise rollouts of Linux are popping up like prairie dogs after a threat has passed—cautiously but with a certain eagerness nonetheless.**

A handwritten signature in dark ink, reading "Abbie Lundberg". The signature is fluid and cursive, with a long, sweeping underline.

Abbie Lundberg, Editor in Chief  
lundberg@cio.com

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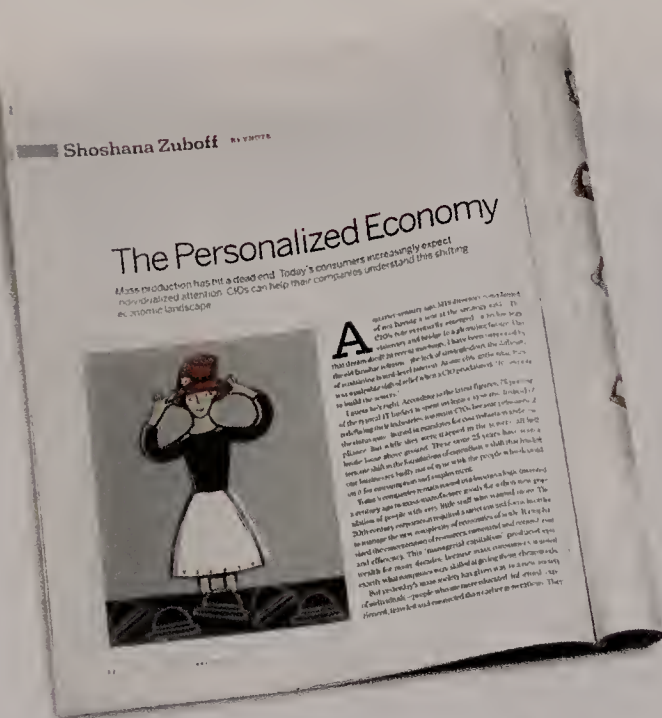
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# InBox



## CIO as Gatekeeper

**Shoshana Zuboff's** April 1 article, "The Personalized Economy," was interesting to me.

In my work as head coach of a group that advises teams of C-level executives on the science of marketing, we focus heavily on the role of the CIO. This is because the CIO is the gatekeeper of all the raw data needed to power ROI models within each of his peer's departments.

CIOs lose ground because many of their peers on the executive team have no idea how to rank the data and build models. Sadly, the CIO gets blamed for their shortcomings.

It is almost impossible to calculate the amount of point-of-sale data that is gathered and lost each day in U.S. sales alone. And this is just the tip of the data iceberg, as many CIOs evaluate CRM, KM and other modeling systems. Today, CIOs must educate their peers on what is possible with the data that surrounds and flows through their corporation.

The CIO can partner with the CMO to build ROI models for the COO, CFO, CTO and CEO that contain data streams monitored and ranked by each C-level team. Once the entire group signs off on each model, the CIO suddenly has the controls

to a decision engine that fuels the new corporate vision.

Such an environment would invigorate CIOs and remove them from the sewer services to which so many have been relegated. Yet if you chose not to accept this role, then grab a mop and bite your tongue!

**MARK WALKER**

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## I've been working with my staff

to discuss the concepts of community and mass customization in our IT infrastructure. You articulated this well in your article, and I am glad you put such a fine point on this critical topic. Keep up the good work. The future depends upon this type of high-quality thinking.

**MATTHEW JETT HALL**

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Associate Chief Information Architect,  
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## Down with Sarbanes-Oxley

**Gary Beach is right on the money** in your April 1 publisher's letter, "Repeal Sarbanes-Oxley."

As the senior IT manager at Timco Aviation Services, I am alarmed and outraged by the magnitude of resources that we have diverted—and will continue to divert—to a never-ending entourage of consultants, auditors and other assorted Sox sycophants.

For marginally profitable public American businesses that compete directly with non-U.S. companies, Sox is a 9.5-magnitude earthquake, rearranging the playing field in favor of our overseas competitors. My suggestions: Make the penalties for Sox-type illegalities tenfold; don't penalize honest U.S. companies and

cripple them with unnecessary investment costs; and repeal Sarbanes-Oxley immediately.

**HAMP HAUCKE**

VP, IT and Properties/Facilities  
Timco Aviation Services Inc.  
hamphaucke@triad.rr.com

**I work for a private company,** and I haven't yet wasted any time with Sarbanes-Oxley (other than attending presentations with my less fortunate colleagues who have wasted tons of time on it). I dread the idea of Sox coming into my world.

On the other hand, I've been able to spend my time on things such as activity-based management, helping my company become more efficient in its interactions with customers, and likewise tuning my awareness of what is value-added time and what is wasted time.

I'll write Congress and support your argument. Keep Sox away from private companies.

I'd also support whatever can be done with antivirus, antispam and antispyware legislation, since that is a similar waste of limited resources (both in terms of people and dollars) for both private and public companies.

**LAWRENCE MOHR**

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*Editor's Note: Sarbanes-Oxley isn't going away soon. For how to deal with year two, see "How to Dig Out from Under Sarbanes-Oxley," Page 54.*

## What Do You Think?

Send your thoughts and feedback to [letters@cio.com](mailto:letters@cio.com). Letters may be edited for length or clarity. For a link to the articles mentioned, go to [www.cio.com/printlinks](http://www.cio.com/printlinks).

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# trendlines

EDITED BY ELANA VARON

NEW \* HOT \* UNEXPECTED



## Is Big Brother Coming to Your Wallet?

**PRIVACY** Most of the hoopla over radio frequency identification (RFID) has been concentrated in the manufacturing and supply chain arenas. Recently, however, the fledgling wireless technology has been filtering into consumer applications, ratcheting up concerns about privacy and identity theft.

RFID tags are not exactly a new thing for consumers: Mobil's Speedpass and electronic highway toll readers—such as E-ZPass in the Northeast—use RFID technology, and there's not been much furor over those devices, mainly because no one is forcing consumers to use them.

But U.S. State Department officials struck a nerve when they proposed replacing the current paper passports with RFID-enabled documents starting this summer. After more than 2,400 people submitted public comments to the plan, many of them raising objections, the government agreed not to roll out the new passports until privacy issues have been ironed out.

The so-called e-Passport would contain the same information as the old passport, with the addition of an RFID tag embedded in the back cover. The chip would store the same data that is displayed on the photo page of the passport, and it would also include a digital photograph, which, if used in conjunction with facial recognition technology at border checkpoints, would prevent forgeries. Officials claim the freshly designed passport will include additional antifraud and security features,

*Continued on Page 18*

## Getting the Word on Portfolio Management

**I.T. GOVERNANCE** Every Thursday, 10 top executives from AAA of Northern California, Nevada and Utah gather to make sure that current IT and business projects are on track. The result, says San Retna, the travel organization's chief portfolio officer, is "double 80" performance. This means that by tracking their projects as a portfolio, Retna's organization can deliver 80 percent of them on time and on budget while achieving 80 percent of the promised ROI. Retna says the meetings are effective because executives can view all investments at once. "At most organizations, that's not possible, because the person who makes the decision to go ahead with an investment is not the

one who is executing the project," he says.

Retna knows that many companies are struggling to manage IT as an investment portfolio. That's why he, along with IT and business managers from 10 other organizations, formed the Enterprise Portfolio Management Advisory Council. The group (which includes Boeing and Washington Mutual) met in March to begin sharing best practices for managing project portfolios across all business disciplines.

The group is starting a website so that



AAA's **SAN RETNA** gets top performance from project portfolios.

members can keep in touch with evolving portfolio management practices, and it plans to launch an online forum for executives interested in following their discussions. Retna says IT leaders can benefit from portfolio management because they face pressure to cut costs while providing more services. "Portfolio management can help them decide where the resources should go," he says.

"We're trying to give people interested in moving forward with this strategy the tools to make it happen." —Susannah Patton

# Big Brother

Continued from Page 17

though they're not specific on what those are.

The American Civil Liberties Union is, however, concerned about how all that data would be stored and whether it would be safe. In its public comments, the group raised the prospect that e-Passports would put travelers at risk of identity theft or unauthorized government tracking because RFID-enabled passports could be "read" by anyone with a strong enough reader. (Reader distances vary by the RFID chip's power, and some chips can be read as far away as 25 feet.)

Erik Michielsen, research director of RFID and ubiquitous networks at ABI Research, says the RFID chips will make passports more secure than current passports, as well as prevent identity theft, but the State Department has yet to present a clear, articulated encryption policy for the e-Passport chips.

Despite privacy worries, the march is on toward putting RFIDs in individuals' wallets, whether or not they want them. In a survey conducted by Big Research and Artafact, 66 percent of respondents said they feared RFID abuse by the government, compared with 42 percent who feared retailers would misuse their data. Meanwhile, in May, the U.S. Senate followed the House to pass the Real ID Act, requiring states to embed RFID chips in driver's licenses.

RFIDs are also being embedded into event tickets, ostensibly to help with crowd management and keep out gate-crashers. Accenture put RFID chips in attendees' badges at a recent conference and used them to gather data about whether attendees went to different sessions from the ones they signed up for, and to ensure only invited guests were let into certain breakout sessions.

Next year, visitors to the World Cup soccer tournament in Germany will have an RFID chip in their tickets designed to allow gate agents to determine whether a ticket is authentic. German tournament officials insist that the chip will not contain any of the personal data from customers' ticket application forms. But they're sufficiently worried about a customer backlash to create a 79-item FAQ about the subject on the World Cup website.

Whenever companies decide to deploy RFIDs containing personal data, CIOs will have to figure out what's going to be done with the data. "Sure they can keep it," says ABI Research's Michielsen, "but people are going to want to know what companies are doing with it."

—Thomas Wailgum

## \$33 Billion—Gone!

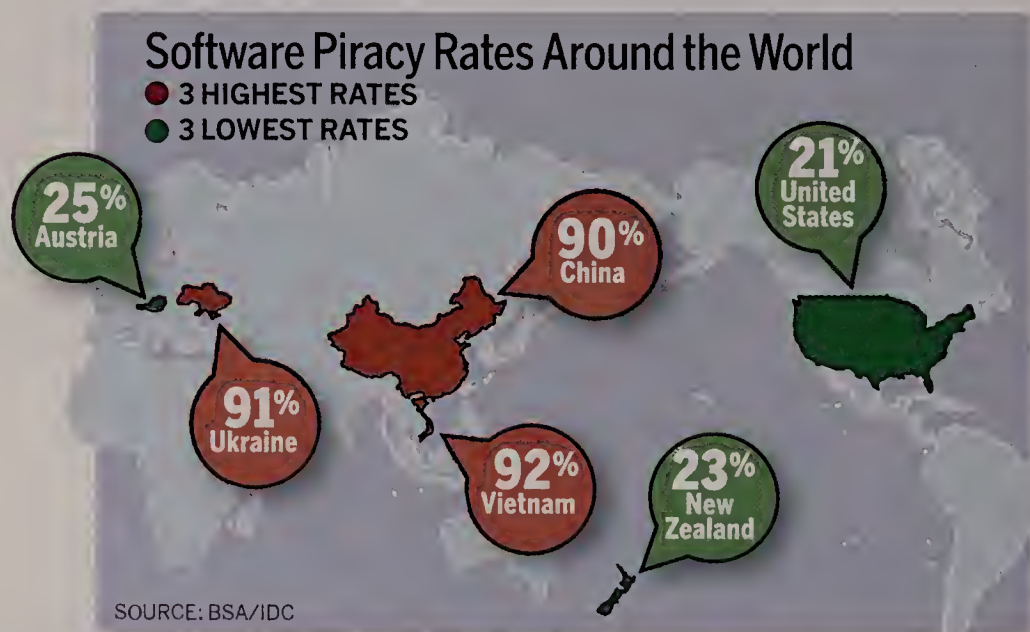
**SOFTWARE PIRACY** Thirty-five percent of all software installed on the world's personal computers is pirated, according to a global study by the Business Software Alliance (BSA) and IDC (a sister company of CIO's publisher). The biggest offender is Vietnam, where IDC estimates that 92 percent of the software installed on PCs hasn't been paid for. The United States ranks lowest in the study, with a 21 percent piracy rate.

According to the study, the rates are highest in countries with developing economies, where the population of computer users is growing. Jenny Blank, director of enforcement for BSA, says these consumers may not be aware of intellectual property laws, or "maybe they don't understand the impact of what they're doing. They think it's a victimless crime."

Educating consumers about copyright laws and tougher law enforcement helps reduce piracy, the study says. Many developing countries have "less mature" intellectual property laws than the United States and Europe, says Blank, so it's more difficult for software vendors to enforce their copyrights.

Overall, the study concludes, piracy cost software companies \$33 billion in lost revenue in 2004.

—Elana Varon



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# DON'T GET HIT WITH A BIG SOFTWARE TICKET

**I.T. SPENDING** CIOs may be tempted to save on hardware costs through capacity on demand and dual-core processing, but there may be a catch. Because vendors price software according to the CPU, the savings could be erased by increases in software costs, according to Gartner.

To save money using capacity on demand, CIOs may buy a server with eight CPUs yet use only six of them, configuring them to take on maximum workloads only when needed. However, many vendors—including IBM, Oracle and Sybase—determine what they charge for software based on

the number of processors, whether or not they are used.

Meanwhile, some CIOs are turning toward dual-core processors for savings. A dual-core processor is an integrated circuit to which two processors are attached. Because the processors are connected in such close proximity, a dual-core chip is faster, consumes less power and generates less heat than two single-core chips—thereby making dual-core systems less costly to operate. However, many software vendors plan to charge double for dual-core systems, even though the performance remains the same.

Gartner predicts that the combined effect will mean software price

increases during the next two years, although the higher fees may not hit every IT department immediately. In a recent CIO survey, 80 percent of IT executives who responded haven't committed to replacing their single-core systems, even though single-core chips will no longer be manufactured by 2007.

Alexa Bona, a vice president of research at Gartner, believes that software vendors will have to change their policies. Until they do, Bona says, CIOs can protect their organizations against price increases by following certain safeguards. These include auditing current software agreements to find out which are based on CPUs and getting software vendors to clarify their pricing intentions for dual-core processors.

—Lorraine Cosgrove Ware

## SOX COMPLIANCE NOW BUSINESS AS USUAL

**MANAGEMENT REPORTS** The effect of the Sarbanes-Oxley Act (Sox) on IT budgets is already receding, as compliance becomes just another cost of doing business, according to recent reports from AMR Research.

According to AMR's June Tech Trends study, compliance has dropped sharply on the list of IT spending drivers. That's a big change from the January edition of the study, when compliance with government regulations was the number-one initiative affecting IT investment. (The IT consultancy conducts the study three times a year.) In January, 26 percent of 252 IT and business execs surveyed said compliance was the most important business driver of IT spending, taking precedence over initiatives devoted to business-IT alignment, customer relationships, IT ROI and other concerns. But in last month's report, just 14 percent of 203 respondents said compliance was the top initiative. Improving business-IT alignment, selected by 24 percent, took back its traditional top spot.

Government regulations have long been part of the corporate agenda, but Sox, with its threat of jail time for executives who aren't paying proper attention to company filings, was behind the sudden interest in compliance, says Fenella Scott, a

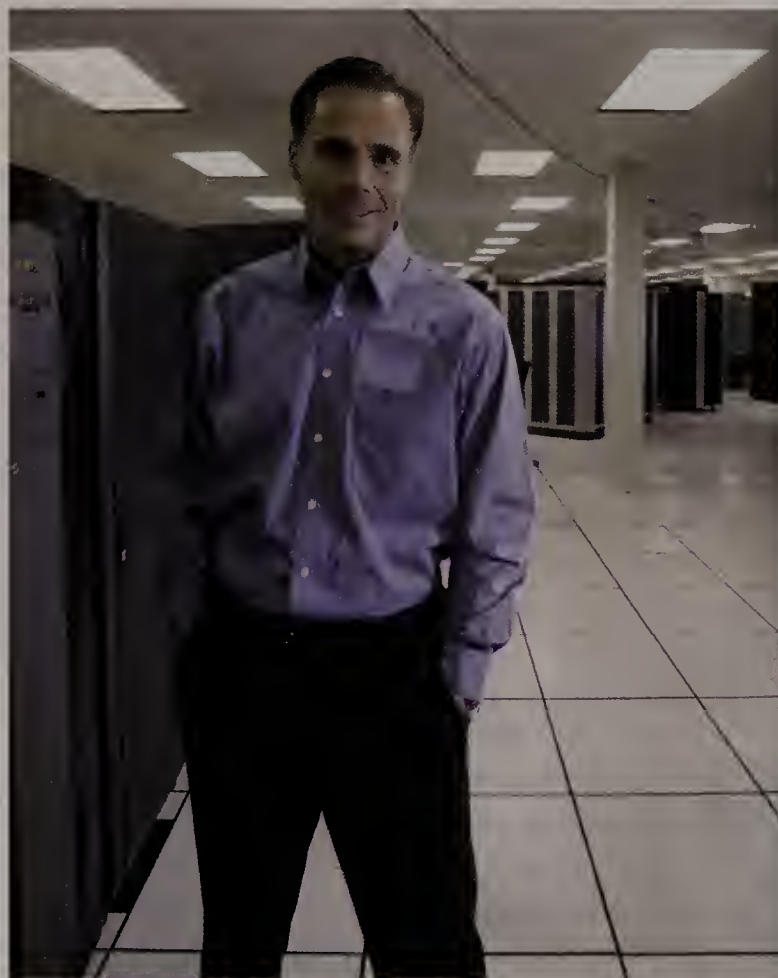
senior research analyst at AMR. But it's not the case that compliance is no longer a concern, she says. Rather, the shock of Sox has worn off, and companies now view spending for compliance as part of the cost of doing business.

Another AMR study underscores this conclusion. "Spending in an Age of Compliance, 2005," released in March, found that companies are moving to a more structured approach to compliance. More than 80 percent of the 225 business and IT leaders in this survey said their companies would have an executive-level compliance officer in place during 2005.

Companies have to think about other regulations, including document retention requirements, the Health Insurance Portability and Accountability Act, and U.S. Food and Drug Administration rules. But Sox is the most expensive regulation, accounting for 39 percent of spending on compliance, according to AMR. With more regulations inevitable, a structured approach to compliance is a smart move. (For more AMR data on compliance spending, go to [www.cio.com/070105](http://www.cio.com/070105). To learn about the next steps for Sox compliance, see "How to Dig Out from Under Sarbanes-Oxley," Page 54.) —Edward Prewitt

Improving business-IT alignment, selected by **24%**, took back its traditional top spot in AMR's IT spending survey.

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# WRIST WARRIOR



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## MILITARY TECHNOLOGY

Step aside, Stallone. There's a new Rambo on the front lines: V-Rambo, short for Video Receiver and Monitor for Battlefield Operations.

More technologically sophisticated than the movie character of the same name, the V-Rambo consists of a video receiver, rechargeable battery and an antenna that hooks up to a 3-and-a-half-inch video monitor that straps to a soldier's wrist.

Introduced by Holon, Israel-based Tadiran Spectralink, the V-Rambo uses analog video technology to receive live images and telemetry data from sources such as surveillance aircraft and satellites. The device displays the information in real-time on the color screen on the soldier's wrist. (It also works with laptops and PDAs.) The receiver is best suited to transmitting analog video, says John Kenkel,

senior director for Jane's Strategic Advisory Services. "If they were using it for more sophisticated tasks, such as integrating with a mapping system, they'd use digital technology for more accuracy," he explains.

The closest technology in development in the United States is a video device incorporated into the U.S. Army's \$2 billion "Land Warrior" project to equip the 21st-century soldier. Raytheon Systems is developing a helmet-mounted computer and display

that will allow a soldier to view data such as digital maps, as well as video from a weapon-mounted camera. But implementation of the Land Warrior system is not expected until 2010 at the earliest.

V-Rambo has been in use by the Israel Defense Forces (IDF) since last year, according to Tadiran Spectralink President and CEO Itzhak

Beni. The device has shortened the time it takes to locate and neutralize enemy targets from minutes to seconds, and it has reduced voice traffic on busy radio networks for the IDF, says Beni. The company also sees potential uses for homeland security and police.

But civilians shouldn't get too excited. A video wristwatch that could detect a traffic jam around the next corner or keep an eye on your kids at school probably isn't in the offing. Avi Peleg, Tadiran Spectralink's vice president of sales, doesn't envision consumer applications because of the costs involved in developing and deploying the system. The closest thing we could find is a \$199.95 wristwatch television from Hammacher Schlemmer, which, with a screen less than two inches square and local TV reception only, is nowhere near as useful.

—Stephanie Overby

## An Officer and a CIO for the Air Force

**ON THE MOVE** John Gilligan has stepped down as the Air Force CIO to make way for three-star general, **Lt. Gen. William Hobbins**, who was appointed the acting CIO in May as part of a reorganization of the Air Force's IT department. Gilligan, a civilian, worked



**LT. GEN. WILLIAM HOBBS,**  
CIO of the Air Force

himself out of a job after he was put in charge last December of integrating the CIO office with other offices responsible for day-to-day communications, electronic warfare and surveillance.

Ray Bjorklund, senior vice president and chief knowledge officer with Fed-

Sources, a supplier of government IT market data, says that although Gilligan is respected by the Air Force's top brass for his role in integrating Air Force systems and providing Internet-based tools for military strategists and war fighters, he doesn't have the same rapport with the Air Force leadership as someone with war experience.

"The three-star [general] will know how critical the information that's developed by the information technology environment is to the day-to-day prosecution of war or peacekeeping," says Bjorklund. The move to make the CIO a three-star general indicates that Air Force leadership recognizes the importance of IT to the Air Force's mission.

Other federal government IT executives—among them **Steve Cooper**, the Department of Homeland Security's first CIO; **Gloria Parker**, the CIO and CTO at the Department of Housing and Urban Development; and **Stephen Fletcher**, the deputy CIO and CTO of the Department of Education—have departed for more conventional reasons: The election and subsequent arrival of new Cabinet secretaries offers these political appointees a reason to return to private life.

Cooper is now at the American Red Cross. Parker left HUD in April to become a senior vice president of business development and strategy with IT services provider Apptis. Fletcher, meanwhile, has become the State of Utah's CIO, where, he says, he is offered an opportunity to live out every CIO's dream of rebuilding an IT department from the ground up.

—Meridith Levinson

# Laptops for Schoolchildren

**DIGITAL DIVIDE** MIT is developing a laptop computer that it plans to sell for \$100 each to government agencies that will distribute them to schoolchildren.

Nicholas Negroponte, chairman and cofounder of the MIT Media Lab, says many countries lack the means to offer children enough education to realize their full potential. However, as Negroponte envisions it, the combination of providing laptops to all children, broadband connections for the towns and villages those children live in, and a school syllabus for the use of digital materials will improve not only the education the children receive but also their future prospects.

Discussions with various governments for pilot projects are under way, Negroponte says. MIT has asked China to order 3 million machines, and Brazil to order 1 million laptops. He hopes to have working units available for demonstration this



Students at a rural Cambodian school work on donated laptops. MIT's laptop project would provide \$100 computers to millions more children around the world.

November, in time for the World Summit on the Information Society in Tunis.

Negroponte's goal is to produce between 100 million and 200 million laptops in the first year. The total worldwide PC market in 2004 was 172 million, according to a recent report from IDC (a sister company to CIO's publisher).

The machines would be sold in bulk directly to government ministries for use in schools. Negroponte is convinced that

with a simplified sales model and some reengineering of the device itself, the \$100 price point can be realized.

About half the price of a current laptop computer comprises marketing, sales, distribution and profit, he says. Of the remaining costs, the display panel and backlight account for roughly half while the rest covers, according to Negroponte, "an absolutely obese, overweight and unreliable operating system."

The low-cost laptop will use a display system that costs less than \$25 and will run Linux, he says. The first-generation machine will use a 500MHz processor from AMD, and will have a wireless LAN connection and 1GB of storage in place of a hard-disk drive. The machines will automatically connect with others, forming a peer-to-peer network for communications and Internet connection sharing.

—Martyn Williams

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# No Crystal Ball for IT

Because information technology changes so rapidly and many users don't understand its capabilities, it's hard to envision what a system will look like until you build it



**T**he CEO of an IT consultancy once recounted to me the blow-by-blow of a difficult conversation he'd had with a client CEO, the head of an auto parts company. It was at the midpoint of a traumatic IT project, an experience all too familiar to many of us in the industry. The remarks of the frustrated client CEO proceeded along the following lines (this paraphrasing omits many colorful "colloquialisms"):

"When I build a new parts plant, I'm told how much it's going to cost, how long it's going to take and what it will do when it's done. Sometimes we have problems, but the people in charge come pretty close to doing what they say they will. Even if they don't, it's for a good reason that I can see and understand. Why can't I buy a new computer system that way? Why can't I get you IT people to work like that?"

It's a good question. Why can't IT people—whether they are developing custom software, installing an off-the-shelf package or upgrading infrastructure—work like that?

As IT executives, you must have heard many variations on this theme. Maybe you've trumpeted the theme yourself. Shouldn't IT involve less art and more science? Shouldn't it be more like real engineering? Why aren't IT processes repeatable? Why are they so immature? If a car worked the way a computer system does, goes the oft-forwarded Internet joke, you'd have a major accident three times a day and have to fix the car by switching it off and then back on. Absurd.

So will IT "grow up" someday so that implementations involve the orderly, disciplined and predictable sorts of processes that we achieve in engineering and factory settings? Let me go on record here and now: It won't happen. At least not

## **The difference between a great, value-adding IT system and a clunky dog that everyone hates is often in the details that are discovered along the way.**

in the way these comparisons—between building a parts plant and building a computer system—suggest. It's not as simple as that, and the idea that it prevents us from making much-needed progress.

IT is different in important ways from many other familiar domains, and it needs to be managed differently. Until we make adjustments to our management processes and explain them satisfactorily to our customers, we'll continue on a treadmill of high failure rates and frustrated clients.

### **You Can't Always Know What You Want**

Ask an experienced manufacturing engineer from the above mentioned auto parts company what he wants a new parts plant to do, and he will likely be able to provide hours of detailed description. He'll have a tangible, physical sense of the specifics. But ask the same engineer what he wants from a new IT system,

and you'll get a different reaction: You'll get ideas, but they won't be as specific or as extensive.

This is not the engineer's fault. It's a consequence of the essential characteristics of IT systems. Because IT systems and technologies change rapidly, often even as the systems are implemented, it's harder for the engineer to stay versed in the possibilities that a new IT system represents. But this isn't the most serious challenge the engineer faces. Even more formidable is the uncertainty that arises from the engineer's inability to envision the new system or the new business process that might result from its installation. He knows the existing system well and may have general ideas about directions of improvement. But asking him questions about the specifics of a hypothetical, intangible, future system that may be radically different from the current system—well, it would be surprising if this were not a difficult, even deeply troubled, process.

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In classic IT terms, important “requirements” are often not discernible in advance. If this statement sounds wrong to you, try on the alternative—that it’s always possible to discern all the important requirements in advance, regardless of the size and complexity of the system and the rate of technological and business change. When Cisco successfully implemented an ERP system in the early ’90s, no one realized it would also need to add a sales support system, until the sales force began to get a tangible sense of what the ERP system didn’t include. The resulting midcourse adjustment, which greatly expanded project scope, was crucial to success. Go ahead and argue, if you like, the largely theoretical point that Cisco could have foreseen this difficulty. The fact is, unanticipated problems (and opportunities) will arise during a project. Any management approach that assumes otherwise is unrealistic.

Indeed, what makes a system great in the end, usually, is not just that it satisfies requirements that were known in advance. The difference between a great, value-adding IT system and a clunky dog that everyone hates is often in the details that are discovered along the way, as the system is implemented and users begin to have a more tangible sense of how it will work.

problems will be encountered when they become so severe that they cannot remain hidden. This is where the most spectacular project failures come from. Even if you avoid spectacular failure, you may succeed only in implementing the system you initially thought you wanted rather than one that you’ve since discovered would be much better.

So where does this leave us? And more important, what can be done about this?

### Managing a New Kind of Work

There’s a company called Despair.com that sells parodies of those inspirational posters that line walls at many companies. You know the posters I mean (a beautiful photograph of, say, a mountain climber, with an inspirational word such as “Achievement”). One of my favorite Despair parodies shows a close-up of a boxer taking a brutal punch, with a message that says, “Agony: Not all pain is gain.”

I refer participants in my executive classes to this poster because I think it conveys a message: When requirements are uncertain, some expenditure of time and money buys you only learning, not progress toward milestones. If you’re not sure about

## If you don’t know for sure what will ultimately work, you have to learn which combination of features, ideas and resources will succeed simply by doing.

Most of the machinery of modern management is directed toward making sure that we build the system right. Our processes for defining requirements, assigning resources, estimating completion timing and managing compliance with milestones are all aimed at building the thing right. All these processes presume that we already know what the right thing is.

But, of course, we don’t in IT. In IT, we are almost always figuring out what the right thing is while we are building it. This is a direct consequence of the nature of the final product—changeable and rapidly changing, intangible and difficult to foresee, presenting problems and opportunities that can be discovered only as the product nears actual use. The problem in IT is not just building the system right but also building the right system. And the latter problem is harder than the first. Building an already well-understood product is a matter of complying with a plan. Figuring out what that right thing is—well, that’s a matter of problem-finding, diagnosis, creative problem-solving and experimentation, all in real-time. Cisco knew the project would require midcourse decisions and changes, and that this would involve far more than just following directions.

Because IT products have special characteristics, we won’t get it right the first time. We can’t. Enforcing a “get it right the first time” ethos will primarily cause people to hide the important problems discovered on the front lines. Instead, these

what will ultimately work, you have to learn which combination of features, ideas and resources will succeed simply by doing.

Like the boxer taking a punch, we may find this learning painful. But the pain is not an indictment of the process (unless it happens so late that there is little you can do about it). Pain in an uncertain process is inevitable, and if there’s going to be pain, you want it to happen sooner rather than later. To paraphrase from product design company IDEO: You want to fail early and often to succeed sooner.

If we adopt this philosophy, the changes we need to make in how we manage IT projects fall into two broad categories: financing and project management.

■ **FINANCING:** You can’t finance an IT project the way you do a parts plant. Buying a plant or a piece of equipment that you understand well is not the right model. A better model comes from venture capitalists (VCs). Wisdom from that industry suggests that you need to budget for uncertain activities (such as IT projects or new business ventures) incrementally. If an entrepreneur wants \$10 million, the VC says, “How about \$300,000 to get you started, then come back and talk to me when that runs out. Bring something to show me, and we’ll discuss further investment then.” By allocating funds this way, a VC preserves the right to invest further or abandon, and controls risk. If all goes well, the next investment might be \$800,000, the one after that \$3 mil-

lion. The eventual total may even add up to more than the initial \$10 million, but it will entail much less risk than a single, up-front investment.

■ **PROJECT MANAGEMENT:** This part will seem more familiar to IT managers. To match the structure of incremental investment, projects need to be structured iteratively, divided into discrete chunks (preferably prototypes with increasing amounts of functionality) that can be showcased in discussions about additional investment. This doesn't necessarily mean working systems at every stage. When Cisco implemented its ERP system, using what it called "rapid iterative prototyping," it created detailed paper accounts of how the system would work early in the project, before the system could be up and running. Because these paper prototypes were very detailed, the company experienced pain sooner rather than later. Cisco took its punches early and learned enough from them to bring the project home successfully.

### How to Avoid a Knockout Punch

My recent conversations with CIOs tell me that people are coming around to this approach, even if we lack vocabulary and

#### Share Your Opinion

What makes an IT system great is not that it satisfies requirements that were known in advance. It's in the details that are identified and incorporated along the way. But how do you explain that to the anxious business side? How have you? Share your insights with colleagues in the **ADD A COMMENT** section at the end of this article online. Find the link at [www.cio.com/070105](http://www.cio.com/070105).

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frameworks to make this way of working seem as rigorous as traditional project approaches. But it is rigorous, or can be, and customers can learn to like working this way. They get a more tangible sense of what will be delivered sooner, and get more input into the project.

That doesn't mean embracing a new way of working will be easy. There are institutional problems and traditional

expectations that get in the way. But the alternative to moving in this direction is to continue perpetuating the fiction that every dollar will provide progress toward the finish line. (It is in the process of doing so in which we will learn where the finish line is.) Managers who won't allocate a cent to learning, who insist that IT ought to "know what they are doing"—they'll learn, but in the most expensive way possible. They might even experience a knockout punch. **CIO**

Rob Austin is a professor at Harvard Business School and chair of the school's CIO Executive Education program. He's coauthor of *Artful Making: What Managers Need to Know About How Artists Work*. You can reach him at [raustin@hbs.edu](mailto:raustin@hbs.edu). Please send your comments to Executive Editor Alison Bass at [abass@cio.com](mailto:abass@cio.com).



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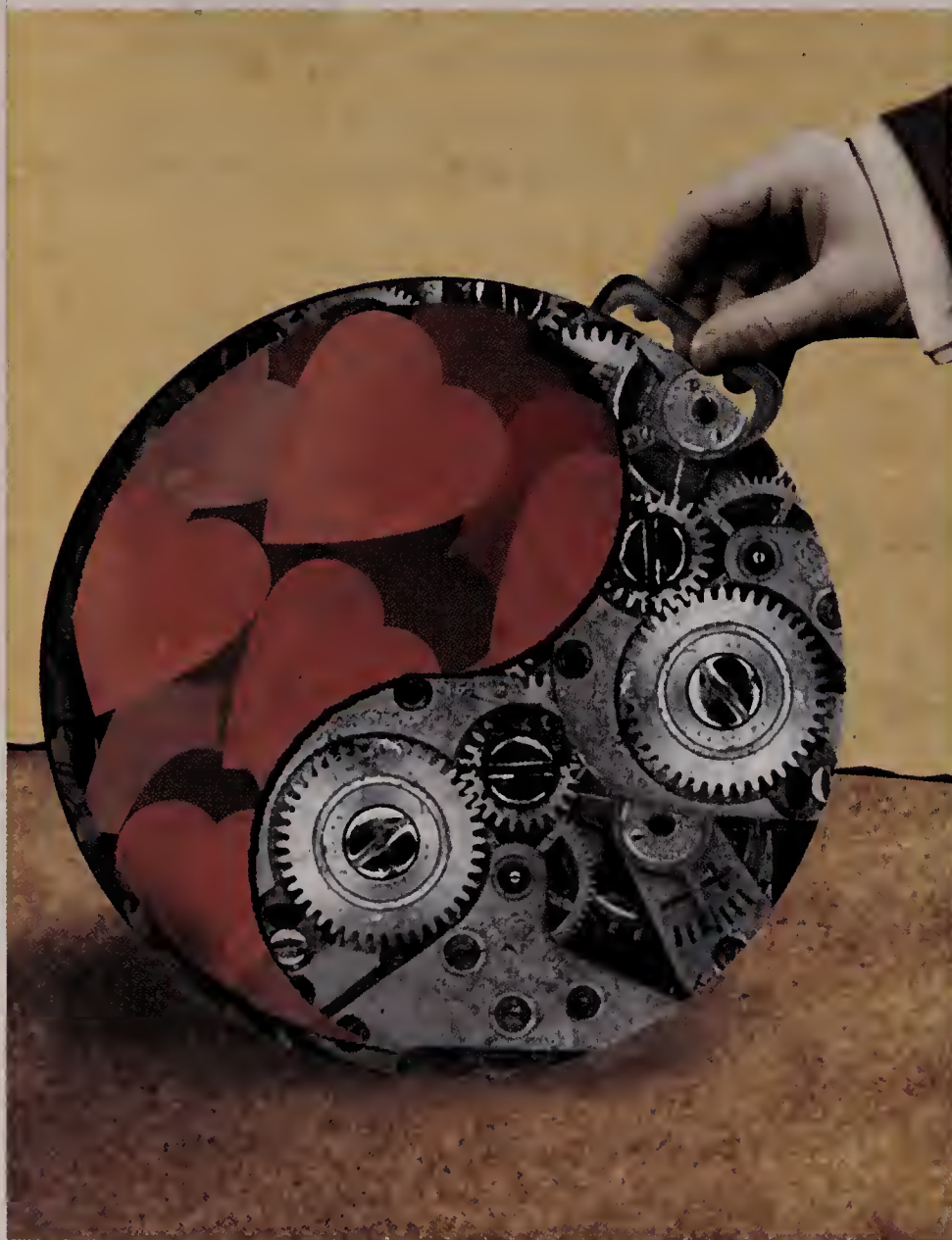
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# The Heart of Persuasion

It's not how much you know, it's what you know about your audience



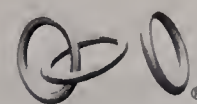
**I**t's tough to admit mistakes. But after all these years of dissecting others' mistakes (or should I say, "learning opportunities"), it's time I picked on myself. I recently did something so stupid, the memory still hurts. While in some sort of PowerPoint-induced haze, I thought I could persuade somebody who doesn't know me to buy into a proposal that he was skeptical about in the first place.

On the surface, the situation seemed fairly innocuous. A client who likes and respects me wanted me to meet with her boss in an effort to get his support for launching an initiative that is important to her. So the two of us scheduled a meeting with him to discuss the topic and argue for a particular approach to the initiative. Before our ill-fated meeting, the boss and I had barely exchanged 20 words. Given the torturous 15 minutes we spent together (that's right, he ended the meeting early), it's safe to assume that our relationship (or lack thereof) is going to remain pretty much status quo.

This case is a perfect example of the hazards of focusing on the hard stuff while forgetting the soft skills. I treated the meeting as just another event in a busy day, week and month, and approached it in a way that is typical for many people: I prepared for the *content* of the discussion without spending a like amount of effort on the *context*.

My doomed-from-the-start approach and consequent failure is described perfectly by Jay Conger, a professor of leadership studies at Claremont McKenna College. In a 1998 *Harvard Business Review* article, "The Necessary Art of Persuasion," he defines effective persuasion as "a negotiation and learning process for which a persuader leads colleagues to a problem's shared solution." My approach neglected the learning aspect

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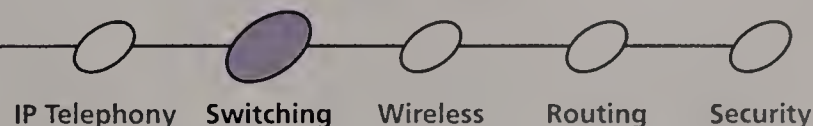
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\*Infonetics, 1Q05 Intrusion Prevention Market share report.



and therefore could not result in a shared solution.

In preparation for our meeting with her boss, my client and I had a series of self-congratulatory sessions in which we discussed the current environment, weighed the options and fell in love with an approach. Never did we explore the boss's views. Like founding members of the "it's all about me" club, we fell upon our swords, believing that our impeccable "logic, persistence and personal enthusiasm," in the words of Conger, would carry the day.

## Formal presentations often shut down communication. A slide show says, "I've got the answers, and you're here to listen."

With full support from my client (who was unable to save me from myself), I came to the meeting armed with a PowerPoint deck. But formal presentations often shut down the very communication that they are meant to foster. Without sufficient knowledge of the interests of the audience, a slide show says, "I've got the answers, and you're here to listen." This type of presentation tends to fall short of the impact of simply asking a few well-thought-out questions earlier in the process.

To make matters worse, I agreed to lead the meeting, assuming that my client's convictions about my credibility would somehow magically be transferred to her boss. The fact is, credibility is personal. Without a preexistent relationship, whatever favorable goodwill I may have had diminished the moment the meeting started and I fired up my laptop—especially since I was armed with an approach guaranteed to thwart relationship-building. I allowed myself to be lulled by my workload and the comfort I felt with the topic and my existing relationships.

The final mistake—surely the death knell for an approach that was already on life support—was sticking to the PowerPoint deck once the boss volleyed an opening salvo, challenging the first word on the first chart. It was as if he held up a red neon sign that read, "I hate this topic. I hate your approach. And I am starting to hate you." To which I responded, "Yeah, I know, but look at the chart on page 3."

It's my hope that this column serves as a reminder of what we already know: Persuasion is a process that starts with credibility. Credibility comes from listening to people to understand them and respect their points of view. You must address both sides of persuasion by spending as much time on the negotiation and learning process as you would on the content of your solution. If you do so, you will spend less time with your computer and more time with people, listening to their views.

## Reader Q&A

**Q: I did the same thing recently while pitching to a venture capitalist for an investment. My similar mistake was assuming that his partner's excitement about our company would be instantly transferred to him. This lesson is timeless and should not be forgotten. Human beings live in this digital world, and we all gravitate to people we like and respect, in that order. You proceed at your own peril when you forget to establish the relationship and credibility up front.**

**A:** Hopefully, you have an opportunity to get up to bat again. After my disastrous meeting, I sent an apology letter and have since smoothed over the situation.

**Q: I am having a lunch meeting with three executives as part of a daylong interview process. I'm taking your advice to heart about the soft side of persuasion. Do you have any additional words of wisdom concerning "selling" in an interview situation?**

**A:** Read the book *Don't Send a Resume: And Other Contrarian Rules to Help Land a Great Job* (Hyperion 2001) by Jeffrey Fox. He underscores the value of doing your research, preparing a list of great questions and listening to identify the value proposition that you can address with your skills. If you start with effective inquiry, you can transition to advocacy once you know what issues or opportunities are important to your audience.

**Q: Your point as I understand it is that the meeting failed because you and your client did not gather sufficient information about the boss's needs prior to the meeting,**

**and the proposed solution was way off target as a result. I doubt that a reasonable boss who is looking for the ideal solution for his company's needs would turn**

### Have a Leadership Question?

For more reader questions and answers from Susan Cramm, go online to [www.cio.com/leadership/executive\\_coach.html](http://www.cio.com/leadership/executive_coach.html).

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**you down just because he did not know you before the presentation. I am sure there are such bosses, though, and I think they are a problem for the companies they work for.**

**A:** Think back to the last time you tried to buy a car, a computer or manage a complicated health situation. People have proven time and time again that they will stop listening to people they don't like or who aren't listening to them—regardless of the suitability of the product or idea. **CIO**

Susan Cramm is founder and president of Valuedance, an executive coaching firm in San Clemente, Calif. E-mail feedback to [susan@valuedance.com](mailto:susan@valuedance.com).



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## What if your assets had appreciating value instead of depreciating value?

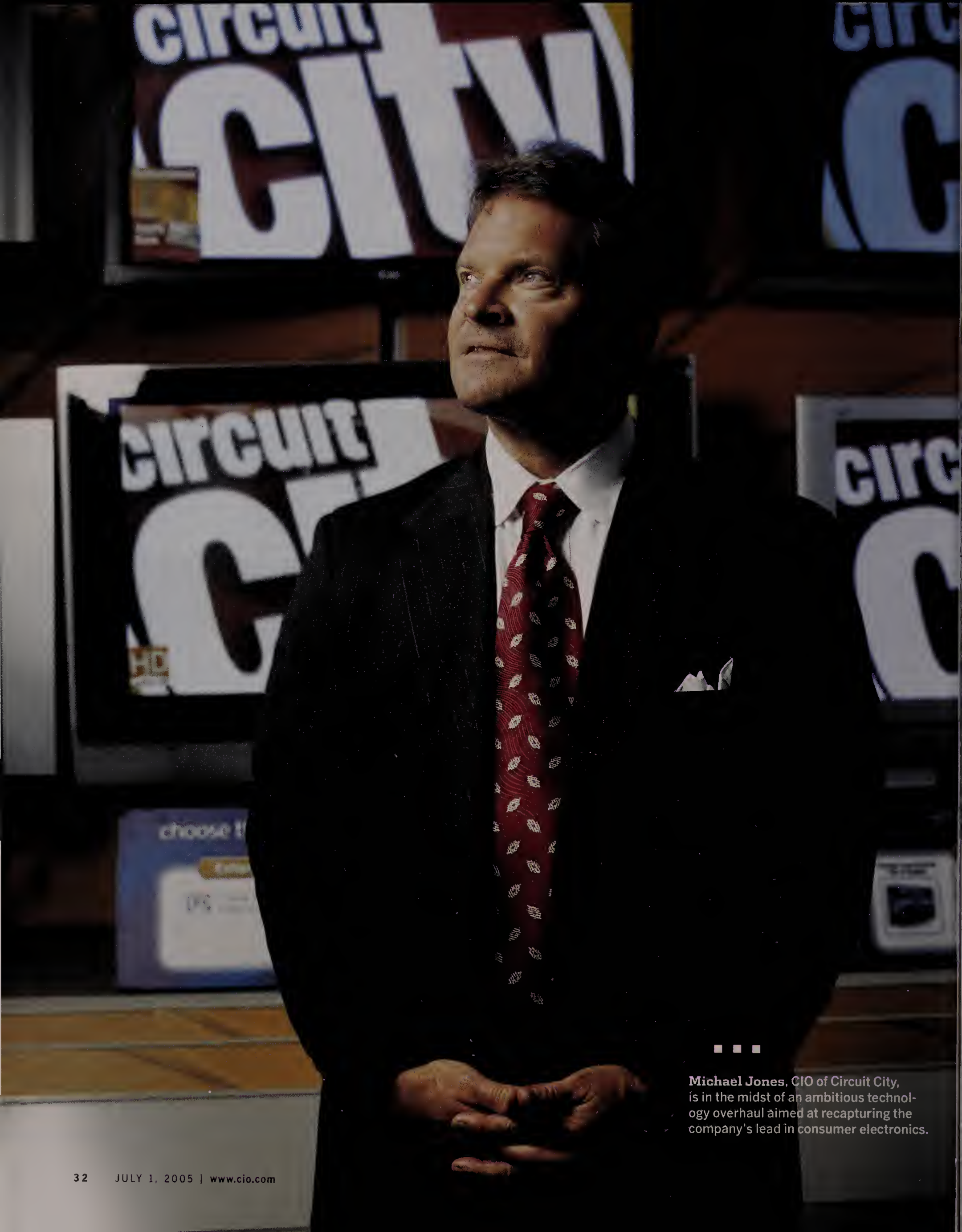
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**Michael Jones**, CIO of Circuit City, is in the midst of an ambitious technology overhaul aimed at recapturing the company's lead in consumer electronics.

# Circuit City REWIRING

**Circuit City is trying to regain its once commanding lead in consumer electronics with a new customer-centric strategy and a heavy investment in IT. But will the turnaround come in time?**

BY MERIDITH LEVINSON

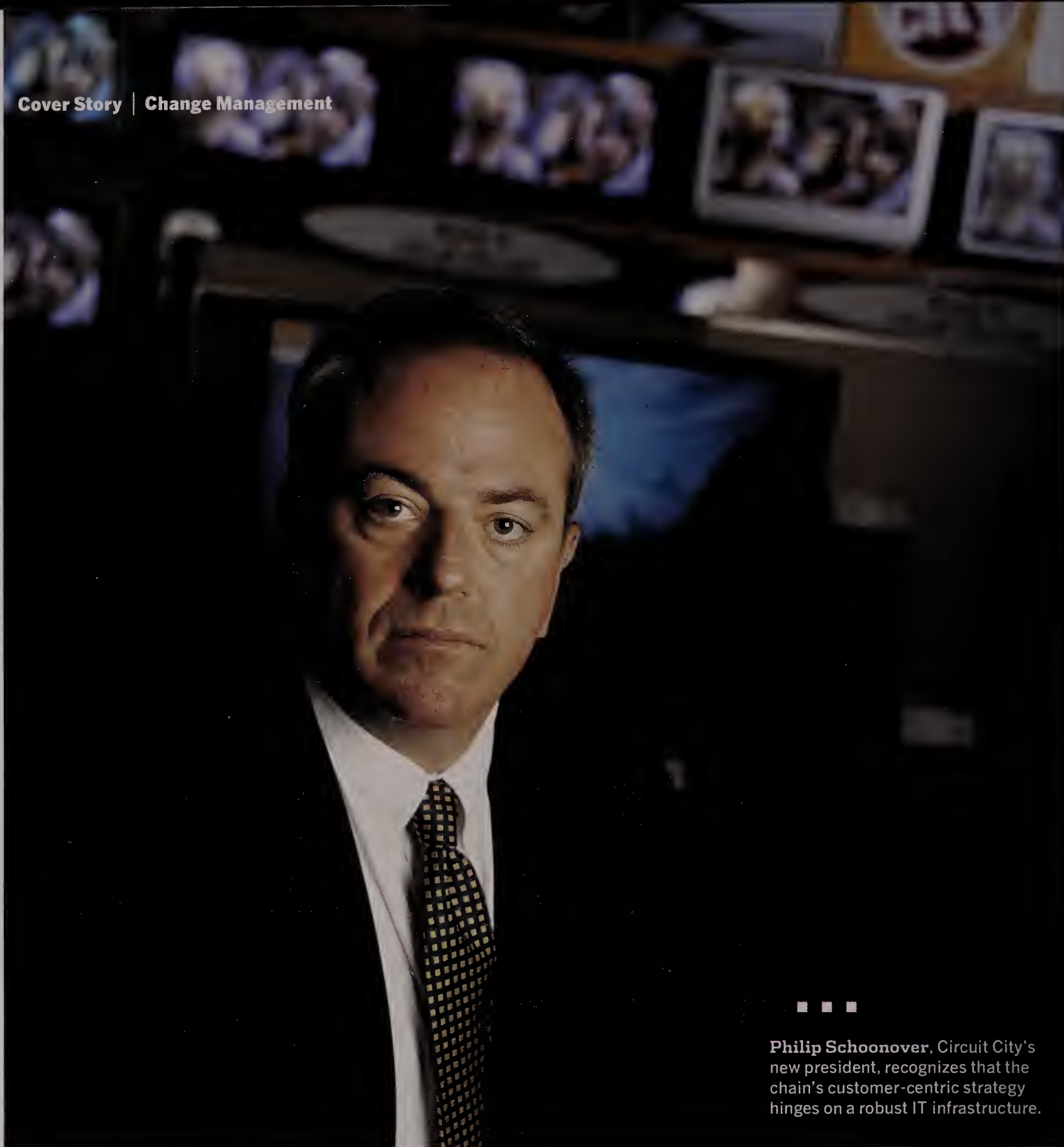
**When Circuit City** expanded the big-box warehouse format to consumer electronics retailing in the 1980s, the company was on its way to becoming *the* place to go for TVs and stereos. By the late '80s, it had sidestepped its then top competitor, Silo, and it soon put the squeeze on the likes of Tweeter and RadioShack. Circuit City was doing so well in the '90s that business consultant Jim Collins, in his best-seller *Good to Great*, wrote: "From 1982 to 1999, Circuit City generated cumulative stock returns 22 times better than the market, handily beating Intel, Wal-Mart, GE, Hewlett-Packard and Coca-Cola."

Today, Circuit City is in a markedly different position. By 2001, Best Buy had raced past the Richmond, Va.-based chain, usurping its position as the number-one consumer electronics retailer. Best Buy now has 608 stores compared with Circuit City's 599 and nearly \$25 billion in revenue to Circuit City's \$9.7 billion. Circuit City is now ranked by consultancy Retail Forward as the number-three seller of consumer electronics, behind Best Buy and Wal-Mart.

"[Circuit City] was the 800-pound gorilla," says Joseph Feldman, a research analyst with the investment bank SG Cowen & Co. But "they woke up one morning and Best Buy had doubled its size with the same number of stores."

#### Reader ROI

- ⌘ Why Circuit City lost its groove to Best Buy and Wal-Mart
- ⌘ How the retailer is trying to turn itself around
- ⌘ Why IT is central to its strategy



■ ■ ■  
**Philip Schoonover**, Circuit City's new president, recognizes that the chain's customer-centric strategy hinges on a robust IT infrastructure.

Since then, Circuit City has been trying to catch up to Best Buy, or at least cement its position as a serious contender in consumer electronics retailing. Last year, its top executives announced plans to turn the company into a customer-focused business that delivers a personalized experience to all of its customers across all of its channels (stores, Web and call centers). Michael Jones, who took over as Circuit City's CIO in January 2004, speaks passionately about the high-profile role technology will play in delivering per-

sonalized customer experiences. But before he can achieve his vision of store associates being able to recognize customers through their loyalty cards as soon as they enter the store, he has a lot of unglamorous groundwork to lay. Circuit City's strategy hinges on a robust IT infrastructure that makes information readily accessible to decision-makers who need it. In fact, everything the company is currently doing to improve its business—from developing more effective promotions to deciding which products should be displayed

at the ends of aisles in stores—hinges on data. "This is heavy analytical work. It's fact-based, data-driven," says Philip Schoonover, Circuit City's new president who was hired in October 2004, ironically, from Best Buy.

Circuit City is just this year starting to invest heavily in the technology needed to act on this strategy. It's upgrading its mostly proprietary point-of-sale (POS) system and building an enterprise data warehouse to replace siloed databases. But some analysts say Circuit City's turnaround effort has been



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hampered by a stodgy, overly complacent leadership that lacks vision. Its top executives saw the Best Buy locomotive coming but failed to react as it steamed past them. Indeed, some analysts say they doubt Circuit City will ever catch up.

"They are many years behind [Best Buy]," says Bill Sims, a senior research analyst with Smith Barney. "I haven't seen a vision, a strategy out of Circuit City yet that would enable them to successfully compete with Best Buy."

Circuit City's experience underscores the importance of vision, focus and leadership in sustaining a great company. It also highlights just how critical up-to-date systems are in running a business and how important it is for IT to proactively find the right technologies to support operations and enable innovation.

## From Cash Registers to Crash Registers

This isn't the first time in Circuit City's history that the 56-year-old company has faced adversity. In the 1970s, Circuit City (then known as Wards) was on the brink of bankruptcy. The CEO at the time, Alan Wurtzel, got the house in order, launched the concept of the Circuit City warehouse superstore and set the company on a roll.

The company's continued growth and success was enabled by a proprietary POS

ture served Circuit City and its customers well for many years, until 2000, when the company started introducing new store formats that allowed consumers to select more merchandise on their own. In addition, the Internet provided a way for many customers to get detailed information about Circuit City products, so they were no longer as dependent on salespeople. And finally, increased competition eroded much of the profit margin that allowed Circuit City and other retailers to support commission-based selling. (Circuit City did away with all commissions by 2003. The move had a

of functionality to the stores that, at the time, didn't exist in retail," says Bowman. The POS system also provided the foundation for Circuit City's multichannel commerce capability. Circuit City was one of the first retailers to allow consumers to check local store inventories online, and to purchase products online and pick them up or return them in stores.

But the POS system got old and overly complex because it was so heavily customized. Store employees venting on a website for retail workers claimed that the system was prone to frequent crashes and

## The changes Circuit City is making to its business are starting to take root—with a modest increase in total sales this year.

system built in the late 1980s. Circuit City had long believed in building its own systems because it felt no one knew its business better than its employees. And in fact, these systems gave the company a competitive advantage throughout much of the '90s, CIO Jones says. The POS system, for example, supported the company's commission-based compensation structure by keeping track of which associates landed which sales, says Dennis Bowman, Circuit City's former CIO and senior vice president of supply chain. The commission-based compensation struc-

ture served Circuit City and its customers well for many years, until 2000, when the company started introducing new store formats that allowed consumers to select more merchandise on their own. In addition, the Internet provided a way for many customers to get detailed information about Circuit City products, so they were no longer as dependent on salespeople. And finally, increased competition eroded much of the profit margin that allowed Circuit City and other retailers to support commission-based selling. (Circuit City did away with all commissions by 2003. The move had a

negative short-term impact on customer service, but it allowed the chain to keep customers in the stores longer and ultimately boosted revenue.) Bowman says associates could also use the POS system to lock down inventory for customers who were interested in buying particular products but needed to first get their spouse's approval. In addition, it enabled them to access inventories of other local stores to see if products that were out of stock in one store might be available in another. "It delivered an enormous amount

that lines sometimes formed at checkout because it was so slow. As the system (which was developed in Turbo Pascal for a DOS operating system) aged, it became harder and more costly to maintain.

"We had too many systems written in code for which you can't find developers anymore," says a former Circuit City executive who asked not to be identified. "These old systems should have been thrown out—and new, state-of-the-art technology put in—a long time ago."

The IT department began upgrading the POS in 2001, but the project was funded in

## Bested by Best Buy

In 2001 Best Buy raced by Circuit City in its total revenue and has continued to widen its lead in consumer electronics



SOURCE: Best Buy and Circuit City annual reports

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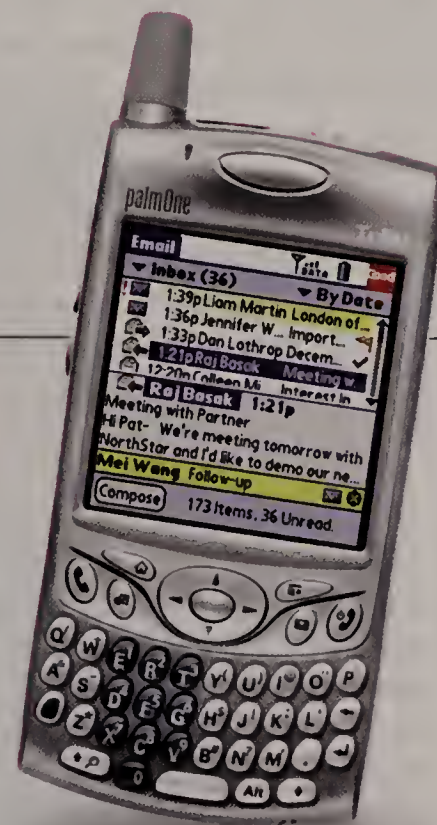


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a way that prolonged it. IT had to reapply for funding for the upgrade every year. The IT department tried upgrading the POS system in 2001, but it never got the necessary funding to complete the job. Bowman says that he regrets not pushing his fellow executive committee members to devote adequate funds to such a large, complex project.

## Location, Location, Location

By the time Circuit City began its attempted POS upgrade, it had bigger problems than cash registers locking up. Specifically, its real estate strategy had come back to haunt executives. The company had chosen second tier locations for its superstores when it was expanding in the 1980s to save on rent. Executives at the time figured that since its stores were destinations, consumers would go a little bit out of their way to get to them, says Frank Brown, a vice president with SunTrust Robinson Humphrey, an investment bank based in Atlanta. And they did. But when Best Buy started expanding in the 1990s and snatched up property in busy shopping centers, Circuit City began losing market share. So in July 2000, Circuit City remodeled some of its stores, beginning with locations in Jacksonville, Fla. The stores in Jacksonville didn't get the return the company needed from the remodel to roll it out elsewhere, says SG Cowen's Feldman. Circuit City tried again in Chicago and the Baltimore-Washington area, but again, the returns weren't good enough. Sims says it took Circuit City a number of years to realize that the location of a store was more important than the look of a store. "They realized they had to start closing down stores or relocating them in order to be profitable," says Sims.

Analysts say an undisciplined and unfocused executive team, led by longtime CEO Allen McCollough, exacerbated Circuit City's problems. In particular, some say the team lacked the vision to compete in an increasingly crowded marketplace. "There have been and are some people that are very focused on doing things the way they've always done them and are not open to change," says Geoff Wissman, a consultant with Retail Forward.

To make matters worse, the company

pursued a series of side businesses that further fragmented the leadership team's attention and distracted them from the core business. Instead of expanding in areas that would have complemented the core business (as Best Buy had done with its new boutique-style stores), Circuit City opened a bank to operate a private-label credit card financing operation, took a minority stake in a used car dealership and conceived a pay-per-view format for DVDs that consumers ultimately rejected.

"They were dabbling in a lot of different areas, and they took their eye off the ball," Feldman says.

"In the 1990s, we saw too late the need for major investment in and renewal of our core business and exactly how to do it," Bowman agrees. "By the time we got it right, we had a very, very good competitor who got it dead right and had a substantial lead."

As Circuit City spun its wheels with remodels and ancillary businesses, Best Buy was investing in an ambitious customer-centric strategy that allowed it to identify its most profitable customers and tailor its stores with layouts and merchandise that meet the specific needs of the company's five most profitable customer segments. (For more information on Best Buy's strategy, see an excerpt of the book *Return on Customer* on Page 40.)

In the meantime, IT fell by the wayside. "When the business flattened out and prof-

its sank, all areas including IT were challenged more carefully than they were in the salad days of the 1990s," Bowman says.

In other words, IT at Circuit City got short shrift. Its neglect came back to bite the company as it tried to get a handle on its business and use data to make decisions about merchandising, inventory planning and promotions.

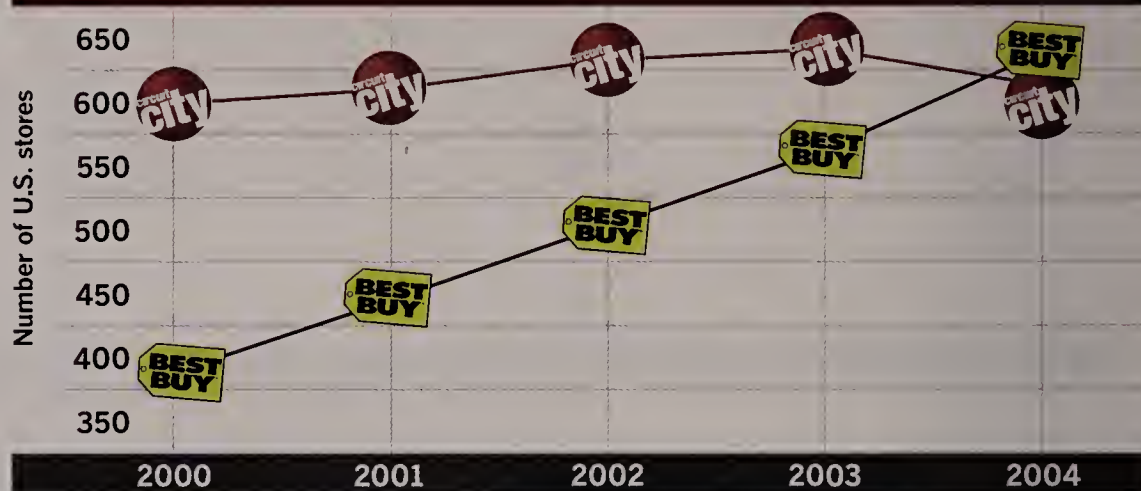
## The Data Dilemma

Current CIO Jones notes that while Circuit City has a lot of data, the company hasn't been positioned to leverage that data to improve the customer experience and boost revenue. Data is stored across different locations, according to Jones. He says with existing technology it sometimes takes the IT department days to respond to routine requests for management reports. And because data is separated into multiple systems, each with its own definitions, the information synthesized from these disparate systems is not always reliable. For example, sales in one database might include warranties and other services while sales in another database might comprise only hard goods. Since businesspeople often doubt the numbers in the reports that IT produces, they rely on their own judgment and often change the numbers, Jones says.

The lack of authentic data has had a par-

## The Shrinking Gorilla

In recent years, Circuit City has been forced to close a number of its superstores because of disappointing returns. Best Buy now boasts more stores.



SOURCE: Best Buy and Circuit City annual reports

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ticularly deleterious effect on merchandising. Because merchants are making extremely important decisions about allocating goods to some 600 stores practically by hand and with flawed data, Circuit City's forecast accuracy has been "horrible," says the former executive. "We had to carry more inventory than we needed [which drives up costs]."

In addition to the forecasting problems, Circuit City couldn't do the kind of business intelligence and customer analysis it needs to position itself as a viable competitor to Best Buy. In fact, a direct marketing effort was scrapped at Circuit City because the company didn't have the IT to execute on a long-term study of customers' purchasing patterns it had conducted from 1996 to 2001. Marketing staff wanted to use the company's customer database to determine the likelihood that every customer who bought a core product would then buy another product, and then to map the probability of subsequent purchases. But the marketers couldn't develop a target marketing campaign because the data about individual customer transactions was too hard to access.

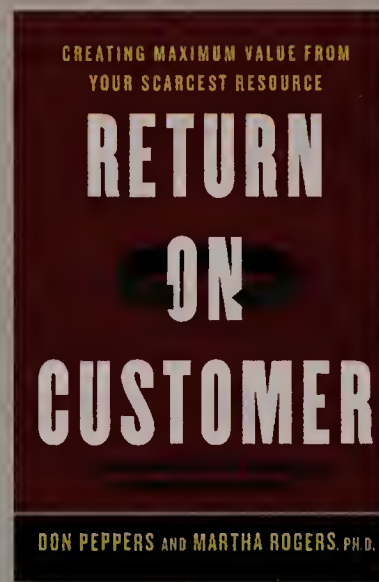
## Bottom Up, Not Top Down

As part of its turnaround effort over the past few years, Circuit City has sold off all of its noncore businesses to focus on its core: consumer electronics. It also has changed the pay structure for in-store employees, has begun relocating stores (it recently closed 19) and hired new management. And the company is finally starting to hone its customer-centric strategy. Circuit City is already improving the customer experience in its stores by, among other things, locating accessories and services close to big-ticket items so that customers can see more quickly what they might need to furnish their home office or outfit a home theater. For example, when a customer is looking at a high-definition television, nearby is a selection of furniture to hold the TV, the cables needed to hook it up, and DirectTV or Digital Cable service products. Circuit City is also making merchandising decisions based on what's important to the customer. For example, its stores are beginning to feature products deemed most important to

# Best Buy Counts CUSTOMERS

Preliminary results at several pilot stores indicate Best Buy's new customer-centric strategy may be on the right track

BY DON PEPPERS AND MARTHA ROGERS



In their new book, **Return on Customer**, Don Peppers and Martha Rogers explain why corporate America needs to realign its focus from selling products to giving customers what they really need. In this excerpt from Chapter 3, they discuss how Best Buy has made strides to achieve such a customer-centric focus.

**Understanding what customers need** from you is vital to your firm's long-term success. In many industries, customer-oriented firms can secure a competitive advantage, and this competitive advantage can easily translate not only into higher earnings but into a higher price-earnings ratio for a company's stock as well.

Customer-centric firms such as Dell, Royal Bank of Canada and Best Buy concentrate on raising their returns on specific customer segments. The combination of increased earnings and an increased stock rating can catapult such firms' stock prices upward. This isn't about "marketing." It's about your company's ability to succeed and grow.

Take Best Buy's recently launched "customer-centricity" effort, for example. Best Buy trained its store-level employees to recognize and think about the different needs of five types of highly valuable customers:

- » **Affluent professionals** who want the best technology and entertainment experience
- » **Active younger males** who want the latest technology and entertainment
- » **Family men** who want technology to improve their lives—practical adopters of technology and entertainment
- » **Busy suburban moms** who want to enrich their children's lives with technology and entertainment
- » **Small-business customers** who can use Best Buy's products and services to enhance the profitability of their businesses

After a successful pilot project involving 32 stores, the company began rolling out its customer-centricity initiative to an additional 110 stores. A UBS analyst report suggests that this initiative should provide Best Buy with stronger financial results as the company refines its program. It also should provide less cyclical results, as more stable relationships with high-value customers counteract shifts in general consumer spending and demand for consumer electronics. The UBS report also notes that employee empowerment is crucial to the success of Best Buy's program. "Best Buy empowers its store-level employees—those individuals closest to

**Stores included in Best Buy's customer-centric pilot project have seen sales gains that are more than twice as good as those of comparable stores.**

# OPTIMIZING Communications Infrastructure

An organization's communications infrastructure is a double-edged sword.

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It can be the crucial tool for success, or it can bleed a business to death. "In order to strengthen their communications infrastructures it is important that firms have a comprehensive understanding of the application designs and transaction flows across the infrastructure," says Chris Ricciuti, Vice President, Professional Services-North America for Equant. >>



## ADVERTISING SUPPLEMENT

Getting this infrastructure right from the start—and making choices that are cost-effective and cost-efficient—not only pays immediate and long-term financial dividends, but it can also contribute directly to the success of an organization's mission.

Herbalife Ltd., a Los Angeles-based global marketing company whose manufacturing operations are based in the US, discovered how true this is when its IT department was stretched to the breaking point by an endless sequence of network, security and virus-borne system troubles. Indeed, the IT department had reached the point where most of its resources were committed to reactive responses rather than to long-term solutions. Ultimately, with outside help, Herbalife found some answers. "We discovered that most of our problems or potential problems were internal, not external," says CIO Aldo Moreno.

### THE COMMUNICATIONS TANGLE

As Herbalife discovered, it is no longer enough to hire the best people, follow exemplary management practices, and purchase the right hardware and software. Complexity has taken on a power of its own, and too often day-to-day events rule. It is not just a prob-

lem for Herbalife; it is a problem for almost everyone. In a statement, Vivian Tero, Senior Analyst, Software Research, IDC Asia/Pacific noted that "globalization and advances in information technology present opportunities for enterprises... [but] this increasingly distributed environment requires organizations to have always-on connectivity and requires an IT infrastructure that is available, secure, protected and reliable."

Furthermore, according to IDC, companies must possess a well-thought-out business continuity strategy. That strategy should be measured by its technical response as well as by the competency and capability of its management to deliver a sound business response. Only this holistic approach can ensure that the IT infrastructure can support a CIO's timely response to a business incident.

And, adds Ricciuti, "Oftentimes companies do not have a comprehensive design methodology in place, which leads to decisions made on partial data, and that increases the risk of missing key features/functions/requirements in the solution."

"The infrastructure of multinational companies [MNCs] today is overly complex, vulnerable, inefficient and under-utilized," adds Lee Cardona, Director, Infrastructure Management

## Seven Secrets to Optimizing Your

### **Enhance applications and processes**

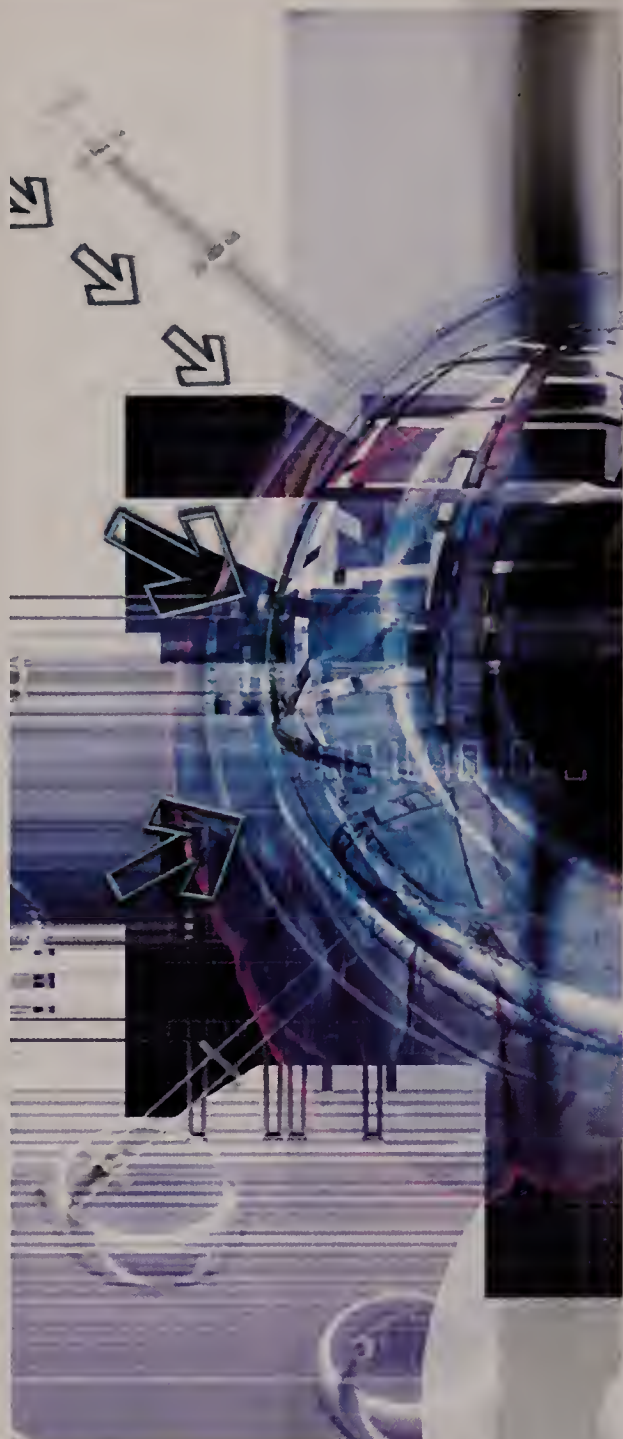
A baseline analysis of applications and application performance is a good first step—before the rollout of new applications.

### **Strengthen customer service**

Customers are always job one. Make sure assets haven't drifted from this core focus.

### **Drive greater productivity**

It is not easy to do, but every area of operations has the potential for improvement.



Practice, Professional Services-North America for Equant.

Not only is infrastructure traditionally complex and historically inefficient, it continues to increase risk and limit business budgetary support. Having all the business benefits that modern infrastructure can provide can quickly be overshadowed if it is poorly managed and poorly delivered to employees and customers. In many businesses, there are growing infrastructure risks and vulnerabilities. What's more, there is an inherent tendency of infrastructure to "silo" around organizational structures or legacy IT decisions, making it harder to manage.

#### ALTERNATIVES TO "BUSINESS AS USUAL"

Faced with these challenges, businesses around the world are moving to infrastructure solutions that allow for greater choice in how they go to market—solutions with global reach. These alternatives include: convergence, consolidation, and virtualization solutions that drive cost down; VoIP-enabled CRM solutions; wireless solutions for sales force enablement; RFID; messaging solutions

that address compliance and regulatory issues; distributed security solutions that protect both at the edge and within the enterprise; industrialized business continuity solutions; and IT Infrastructure Library (ITIL)-based operations for world-class customer support and delivery. "In today's faster, cheaper, better world, consistent and unified service excellence is a must," says Cardona.

In growing numbers, organizations are choosing utility-based solutions that are modular and scalable. They are looking to management solutions to rationalize and control CapEx and OpEx while eliminating silos and providing enhanced visibility. And they are looking to full-service alternatives that can provide end-to-end capabilities, leveraging leading technologies to meet goals, control costs and enable consolidation.

#### EQUANT CUTS THROUGH THE CLUTTER

Equant is a recognized leader in global, integrated and customized communication infrastructure solutions. Equant combines its network expertise and network reach to manage more

than 152,000 user connections across the world. Working on the communications infrastructure of scores of corporations, Equant engages with CIOs to address broad business issues, such as total cost of ownership, business continuity, regulatory compliance and application performance.

Harnessing a unique combination of network expertise and business-oriented IT consulting, Equant focuses on providing the integrated global communication solutions that ensure business success. Services are fully managed from end-to-end. Equant offerings include utility-based solutions that are modular and scalable to meet the complex management challenges faced by large multinational companies, whether operating locally or around the globe. These services include business intranet and Internet solutions, high-performance remote access services over local fixed or dial-up lines, and many other Wide Area Network services, such as X.25, SNA, frame relay and ATM.

Customers and industry analysts recognize the value Equant provides. Late last year, Equant was named as a leader in Gartner

## Communications Infrastructure

### **Improve security and reliability**

No organization can afford to scrimp. The keys are knowing what requires focus and where to put resources.

### **Comply with regulations**

It is no longer optional. What you don't know will hurt you, and you must be the master of the legal and regulatory requirements facing your business.

### **Centralize control of network devices**

Architecture has been stretched to accommodate business needs, and management needs to keep pace.

### **Reduce costs**

More can be less: The optimal choices in technology and services can yield the results you require without breaking the bank.

*Case Study:****Vitamin Firm Gets the Skinny on IT Health from Equant***

Herbalife is a highly network-centric company. As a top player in the weight management and nutrition business with more than 1 million independent distributors in 59 countries, the company considers its network essential to business. Ongoing network optimization is central to this strategy.

"We continually assess and test our network strengths and weaknesses to ensure that our technology stays at a level appropriate [to the changes going on in the world]," says CIO Aldo Moreno. "In a sense, we are always in motion, always looking to protect ourselves and our distributors."

To support Moreno's vision, Equant has implemented its managed intrusion detection service (IDS) at three Herbalife locations. IDS is helping to ensure better staff resource management, provide 24-hour-a-day network monitoring and eliminate false network security alerts. Equant has also helped Herbalife to dramatically reduce its exposure to virus attacks.

Equant has a full range of strategic partnerships with specialized organizations, enabling delivery of products and services that exactly match a customer's needs. In the case of Herbalife, project planning and ongoing management were key, including management of the relationship between Herbalife and a managed security provider.

Equant directed a complete audit of the Herbalife network, including the scanning of more than 700 servers to complete a baseline inventory and footprint of all equipment, IP server addresses, applications and user names of permitted server users.

Herbalife's IT team is now better able to maintain the company's network. What's more, they have full control over every piece of software on every computer. Instead of spending time fighting fires they are truly proactive, and Herbalife's IT infrastructure is supporting its business strategy.

Inc.'s annual Global NSP Magic Quadrant 2004 (November 2004). According to Gartner, vendors listed in the leader quadrant are performing well today, have a clear vision of market direction and are actively building competencies to sustain their leadership position in the market. Equant was evaluated on its "Ability to Execute" and "Completeness of Vision."

Equant was also the recipient of the Frost & Sullivan 2004 Customer Service Innovation Award for the European IP VPN services market. Equant won this award based on its excellence in developing and implementing new customer care systems that set high standards for customer interaction and timely response. In selecting Equant as the award recipient, Frost & Sullivan said it recognized Equant's strategy of thoroughly reviewing its entire solution and service portfolio to develop a plan that addresses customers' critical issues. By using a consultative approach, Frost & Sullivan said Equant is able to analyze each customer's individual needs, help them better analyze and improve their business processes, and integrate complex communications solutions.

Similarly, in *The Forrester Wave Global WAN Services, Q2 2005*, published recently by Forrester Research Inc., an independent research firm, Equant leads the international network operator community in providing multiregional WAN services to large and mid-market MNCs, and has been recognized as providing the best "derived overall satisfaction" in its sector. In the 12th worldwide survey of users' opinions conducted by Telemark Services Ltd. a leading market intelligence firm specializing in customer satisfaction for the telecommunications industry, Equant surpassed competitors BT, AT&T, Cable & Wireless, Infonet, MCI and NTT on the IP VPN service attributes identified as most important by customers.

Indeed, Equant Infrastructure Management Solutions provide answers that address both CapEx and OpEx issues and enable enterprises to take advantage of leading technologies today. Equant's Infrastructure Management Solutions are end-to-end, from initial concept and requirements identification to full service and management of large global infrastructures. Equant, a subsidiary of France Telecom, serves thousands of the world's top companies with the industry's most extensive portfolio of communications services and network solutions, including the market-leading IP VPN used by nearly 1,300 global businesses. ■

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its customers—to tweak merchandising, store signage, store layout and so on to best appeal to [particular customers],” the report says.

For example, a Pasadena store employee explained how store-level associates had suggested a reconfiguration of the store to better appeal to suburban moms, moving small appliances down onto a low rack along the store’s main walkway, rather than leaving them stocked on higher shelves among the major appliances. According to the report, “sales of small appliances skyrocketed to well into double-digit gains from moderately negative.”

The report continues, “The employees in the appliance department...next plan to create displays that showcase items such as refrigerators, stoves, and washers and dryers in home-like settings along the perimeter of the appliance department [and] to develop a child play area...so that customers have a way to entertain their kids....”

Best Buy’s initiative is based on seeing its business from the customer’s perspective, understanding customer needs and then attempting to meet those needs. The company says the stores included in the pilot project have seen gains in comparable-store sales more than twice as good as other U.S. Best Buy stores and a gross profit rate higher by about 0.5 percent of revenue.

According to Brad Anderson, the vice chairman and CEO of Best Buy, customer centrality is now viewed as a core competence that the company wants to develop, as a way to strengthen its operations, its employee performance and its ability to build brands.

“We believe that if we succeed in linking those capabilities, we will clearly differentiate Best Buy from our competitors,” Anderson said in commenting on the firm’s quarterly earnings. The key to Best Buy’s financial success, in other words, is its ability to see things from the customer’s perspective.

Don Peppers and Martha Rogers, PhD, are the founding partners of Peppers & Rogers Group, a management consultancy (now owned by Carlson Marketing Group) that concentrates on customer issues.

### Fine-Tuning Customer Focus

How good is your IT at putting customer insight at the top of your corporate agenda and at the heart of your bottom line? Could it be better? Should it be? To find out how well you’re doing, take the **RETURN ON CUSTOMER QUESTIONNAIRE**. Find the link in the online version of this story or at [www.cio.com/070105](http://www.cio.com/070105).

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customers on the displays at the ends of aisles. And it is trying to nail the basics of customer service, for instance, by making sure that items are not out of stock.

This customer-focused strategy requires a considerable change management effort inside the company. “The ‘we have all the answers, do as I say not as you think’ vintage top-down management style is probably behaviorally the most difficult to change,” says company President Schoonover. The company’s businesspeople often relied on their instincts or what worked in the past to determine what products to promote, how to promote them and where to place merchandise in stores. Schoonover says he wants the company to replace hunches with facts.

To speed the change management effort,

Circuit City’s financial planning and analysis group is charged with training operational staff on the meaning of data and how to use it in decision making. Schoonover, who some analysts believe is being groomed to take over McCollough’s post as CEO, is also making sure that managers regularly spend time talking with customers and store employees; it’s a metric against which they’re now measured. Schoonover also has set up weekly meetings to discuss operations and make business plans based on what executives are hearing in the field from customers and store operators.

For his part, Jones is building the IT infrastructure to make sure that access to information is not a problem. Last August, he announced a technology overhaul focused

on more standard and fewer proprietary systems—including new data warehousing capabilities from IBM that will provide business users with real-time access to information about customers, promotions, inventory and store performance. The new data warehouse will also support the company’s recent efforts to create more effective promotions, drive more traffic to stores and make better merchandising decisions.

Jones and his IT team are also installing a new Linux-based POS system from IBM that will support the new customer service strategy and multichannel commerce capability, a new fulfillment application that helps Circuit City coordinate its multichannel commerce capability, and a service-oriented architecture built on Web services that makes it easier for Circuit City to plug and play applications.

Last year, the company’s capital spending on IT totaled \$37 million. This year it will rise to \$112 million. Pieces of the ambitious new infrastructure are already in place. At press time, the POS system was being tested for quality assurance before being piloted. Jones hopes to have both that system and some of the data warehousing capabilities running by the time the company enters its peak season in the fall.

The changes Circuit City is making to its business are starting to take root, analysts say. “Through systems investments and new leadership, they’re on a better road today than they’ve been on over the past couple of years,” says Sims. While the company’s fourth-quarter and year-end financial results were hardly great in the grand scheme of earnings reports, they showed some improvement. Total sales for the fiscal year grew 6.2 percent from last year, and same-store sales grew a modest 0.7 percent over the same period. Analysts say these results show that the company’s efforts to use data to create more effective promotions and make better merchandising decisions are starting to pay off. But Circuit City is not out of the woods yet.

“They did a pretty good job in the [fourth] quarter in some areas,” SG Cowen’s Feldman says, “but there’s still a long way to go.” **CIO**

Senior Writer Meridith Levinson can be reached at [mlevinson@cio.com](mailto:mlevinson@cio.com).

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**Mickey Lutz** (left) and **Robert Wiseman**, the CIO and CTO for Global Agency Solutions with Cendant Travel Distribution Services, made a successful bet that a critical application could run on Linux, saving the company more than 90 percent in system operating costs.



# ASCENDING SOURCE

How Cendant  
Travel Distribution  
Services replaced a  
\$100 million mainframe  
with 144 Linux servers and  
lived to tell about it

BY CHRISTOPHER KOCH

**In the summer of 2003,** Mickey Lutz did something that most CIOs, even today, would consider unthinkable: He moved a critical part of his IT infrastructure from the mainframe and Unix to Linux. For Lutz, the objections to Linux, regarding its technical robustness and lack of vendor support, had melted enough to justify the gamble. "The issues raised around open source, around its viability, were in the past," recalls Lutz, CIO for Global Agency Solutions with Cendant Travel Distribution Services, the parent company of online travel brands Orbitz and CheapTickets.com.

Few CIOs agreed with Lutz then or now. Many CIOs are experimenting with Linux these days, but less than

#### **Reader ROI**

- :: **Why Cendant Travel Distribution Services adopted a Linux infrastructure**
- :: **Technical issues to consider during development and deployment**
- :: **Staffing requirements when using Linux**

10 percent of the Fortune 1000, according to research company Meta Group, have been willing to bet their core infrastructures on it—to transform the Linux penguin mascot from cute to brute.

They've had some good reasons for their fear of flying. For starters, the technical challenge is significant. You need many carefully formed flocks of Linux-based Intel servers to equal the might of a single mainframe. In addition, the slow uptake of Linux in high-transaction applications has kept support for big, complex Linux environments more scarce and slightly more expensive than traditional heavy-duty platforms such as Unix and mainframes. And the savings from Linux and Intel matter less in a complex environment where applications, databases and their related support and maintenance can account for as much as 80 percent of the overall cost of running a system, adds Jerald Murphy, a Meta Group analyst.

And it's true that Cendant has needed every bit of support that it could get for Linux so far. Lutz's IT group rewrote a complex, real-time airline pricing application that serves hundreds of thousands of travel agents around the world and that also acts as the system of record for all of United Airlines' ticket reservations. When this application came up on Linux, it proved to be so demanding—it handles up to 700 pricing requests per second—that it completely redefined Cendant's expectations about what it would take to get Linux to work. "We have broken every piece of software we've ever thrown at this platform, including Linux itself," says Lutz.

That has resulted in some scary moments, including an initial slowdown in the system that left United Airlines agents intermittently unable to access the reservation application (one outage lasted about

45 minutes) over the course of four days in July 2003. If you are United Airlines and move roughly 8,000 passengers per hour, you need the computers to work all the time. "Even a little downtime is a big deal," admits Lutz.

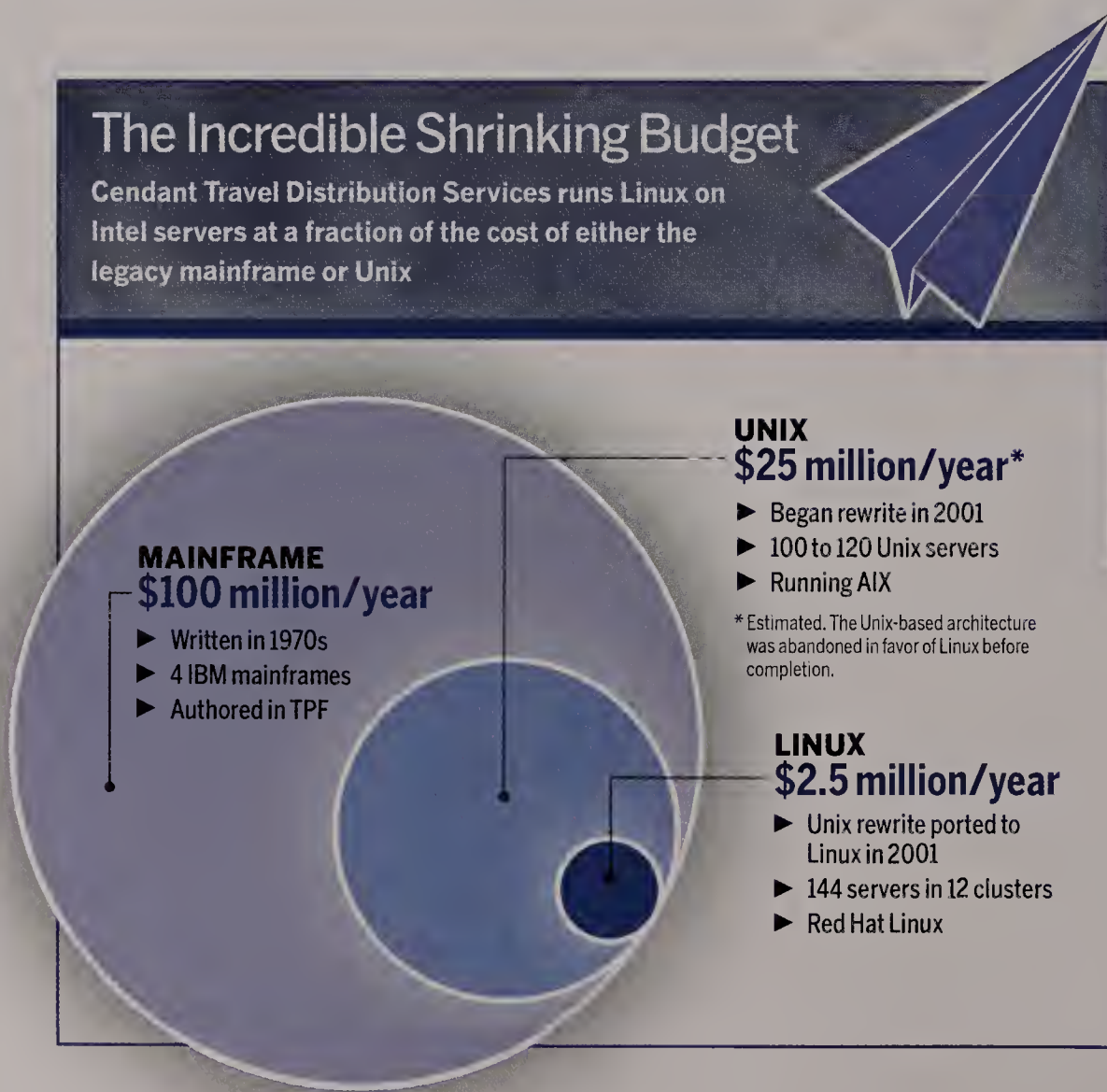
But he maintains that the gamble on Linux has been worth it. "Our business strategy is to be as efficient as possible [while] processing transactions," he says. "To do that, we have to bring down the cost of our technology." Lutz claims he has done that. A platform on the mainframe that was projected to cost \$100 million now costs about \$2.5 million on Linux and Intel servers.

The final hurdle for the adoption of Linux at the highest level of the corporate infrastructure is the comfort level of CIOs. Just as few CIOs are interested in first versions of software, few are ready to risk their most important applications on a technical infrastructure that most of their peers haven't embraced. Furthermore, although Linux is closely related to Unix, for a staff trained on the mainframe, the change to the Intel environment will be complete and dramatic. The morass of litigation threats and fears about the open-source model of development and support haven't helped, even though a number of high-profile vendors—such as IBM, Hewlett-Packard and Oracle—have loudly pledged support for Linux.

That means adopting Linux is still very much a personal decision and a personal risk for CIOs. It is a chicken-and-egg game. Which comes first, adoption or vendor support? Reduction of risk or cost savings? Solid vendor support is critical, as is an internal staff capable of handling technical issues and finding answers that vendors—who don't control the development of Linux any more

than CIOs do—cannot provide. Proper testing is also crucial, because Linux runs on an architecture—namely, Intel chips—that has not yet been widely used for mission-critical, transaction-intensive workloads.

In other words, Linux is free, but not risk-free.



## FROM BLEEDING EDGE TO LEADING EDGE

Linux moved from bleeding edge to leading edge in Lutz's mind as Cendant looked for ways to bring down the high cost of maintaining an ancient transaction infrastructure. The pressure to save money became intolerable after the the dust from the Internet bust cleared. Travel—led by brand names such as Expedia, Travelocity and Orbitz—emerged as one of the most powerful online channels left standing.

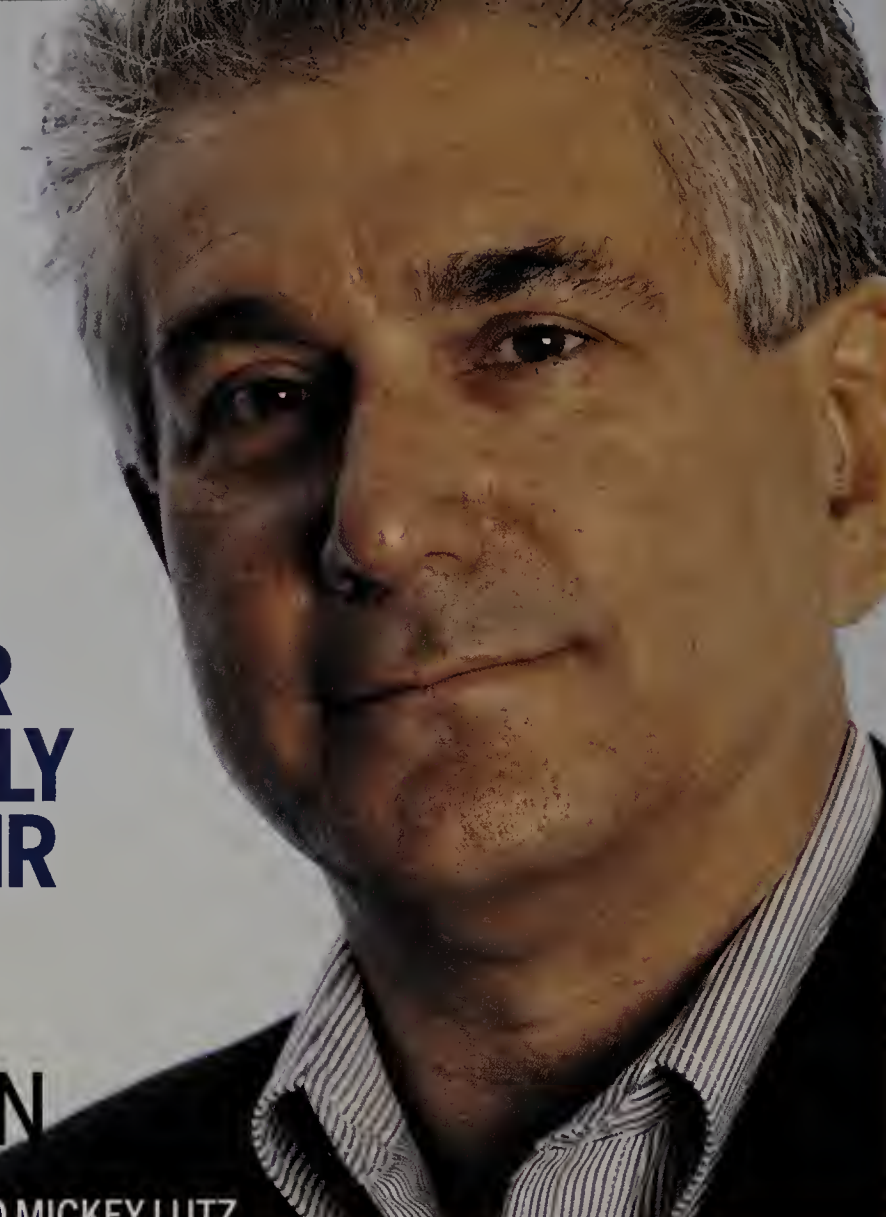
Lutz was in command of the alternative to those bright, shiny websites: an expensive, aging global distribution system (GDS) called Galileo. It is one of the original four mainframe-based travel reservation systems developed in the 1970s (the others are Amadeus, Worldspan and Sabre) that travel agents access through their desktops. A perennial

Fr: a wide range of information management challenges

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A close-up portrait of Mickey Lutz, a middle-aged man with short, graying hair, wearing a dark suit jacket over a light-colored striped shirt. He is looking slightly off-camera with a thoughtful expression.

**“MY TEAMS  
HAVE TO BE  
FAR BETTER  
TECHNICALLY  
AND IN THEIR  
PROBLEM-  
SOLVING  
SKILLS THAN  
BEFORE.”**

—CIO MICKEY LUTZ

also-ran to Sabre in the travel agency market, Galileo, like the other GDS relics, has lost more than 40 percent of its market share in the past decade to Internet rivals—including the airlines themselves—that have lower infrastructure costs and can afford to charge smaller fees to agents and travelers, according to Morgan Stanley analyst Christopher Gutek. “The GDSs aren’t growing; they’re fighting to keep from shrinking,” says another analyst, James Wilson, managing director at JMP Securities. “What [Galileo] has to do is keep driving its processing efficiency.”

In 2001, to cut costs and to try to differentiate Galileo from its GDS rivals, the business brass authorized an update of the centerpiece of the aging Galileo infrastructure, an airfare pricing application called Galileo 360° Fares. While it was hot stuff in the '70s, Fares had fallen behind the times. For example, it was very fast at reaching into the mainframe and retrieving flights, but it could not automatically administer any of the rules that applied to pricing the flights—such as requiring a Saturday night stay-over to qualify for a discount. Galileo IT employees had to match the rules to the flights and manually input them—thousands per day—into the system. The update would eliminate all the manual work and the errors it created and push new fares to travel agents in a fraction of the time. It would also give Galileo a leg up (temporarily, anyway) on its GDS competitors, some of whom were rushing to update their pricing software too.

Lutz also saw an opportunity to reduce the cost of the infrastructure behind Fares by moving it from the mainframe to Unix, which by then had matured enough to run the volumes and speeds necessary for Fares. At the time, Lutz looked into Linux and rejected it. “The performance of the hardware and the software just wasn’t

there,” he recalls. Questions about finding real enterprise support and the long-term viability of the open-source model also rang in his ears.

But the Fares rewrite took time. By 2003, the outlook for Linux had changed dramatically. Linux could operate on larger systems, Intel servers were much faster and Lutz’s data center provider, IBM, had emerged as the leading champion of the platform.

The technical robustness of the hardware and software and support availability all crossed an invisible baseline that Lutz (and every IT leader) has in his mind for new technologies: Lutz felt personally comfortable with it. He decided that the benefits finally outweighed the risks. “I saw many companies adopting it, and the vendor support was

there,” he recalls. “There are significant cost savings possible with open source, and they became far too compelling for us to ignore.”

## WILL THIS PENGUIN FLY?

The transition of Fares to Unix was already 25 percent complete, but Lutz halted it, ordering a five-person internal team to put the application through its paces on Linux servers. They would check to make sure that data flowed properly and that the servers could handle the expected speed and volume of the transactions. If Linux held up, the potential cost savings would be enormous—up to 90 percent over Unix, according to Robert Wiseman, CTO for Global Agency Solutions with Cendant Travel Distribution Services.

The testing was risky, however. The Linux architecture called for the application and the data to be distributed over more than 100 servers. This model meant that the team could not build a subset of the production environment to accurately predict how the penguins would fly. That was deemed too costly and time-consuming.

The decision not to focus more on testing came back to haunt them. In June 2003, after three months of testing, Cendant moved the Fares production system to Linux. Lutz and Wiseman were at a conference in Portugal when calls started coming in, saying that the system was experiencing mysterious slowdowns.

The team had not envisioned the intensity with which Fares would crunch the data being held on multiple storage servers. For example, when travel agents asked the Fares system for a price for a ticket from Boston to Denver, they unleashed a torrent of calculations. According to Lutz, the number of possible combinations of flights and prices for all the airline carriers between two major cities has been esti-

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imated by researchers at MIT to be 10 to the 30th power. The Fares software pulls millions of different combinations out of Galileo's storage complex and calculates prices within a second.

According to Wiseman, Fares' vast appetite for data being held on the storage servers quickly created hot spots in which the demand for certain data types began to overwhelm some of the storage servers. Wiseman says that the volume and data distribution requirements of the Fares application (which he declined to identify) forced him to find a different replication solution that the original environment could not satisfy. Meanwhile, the application servers were literally pecking them to death with requests for data. Some slowed down to a crawl. The application slowed down with them.

### HARD LESSONS LEARNED

Frantic calls began coming in from some of the 44,000 travel agency locations in 116 countries that were unable to access Fares. Worse, because of significant outages, United Airlines' employees could not access core flight information—including schedules and connections—for as long as 45 minutes. The problems were intermittent over the course of four days. Lutz would not comment on the financial losses incurred by United or Galileo during the downtimes. Once the problem servers were pinpointed, a 40- to 50-person cutover team of IBM, Red Hat and Cendant engineers brought the problems under control by throwing more servers into the mix.

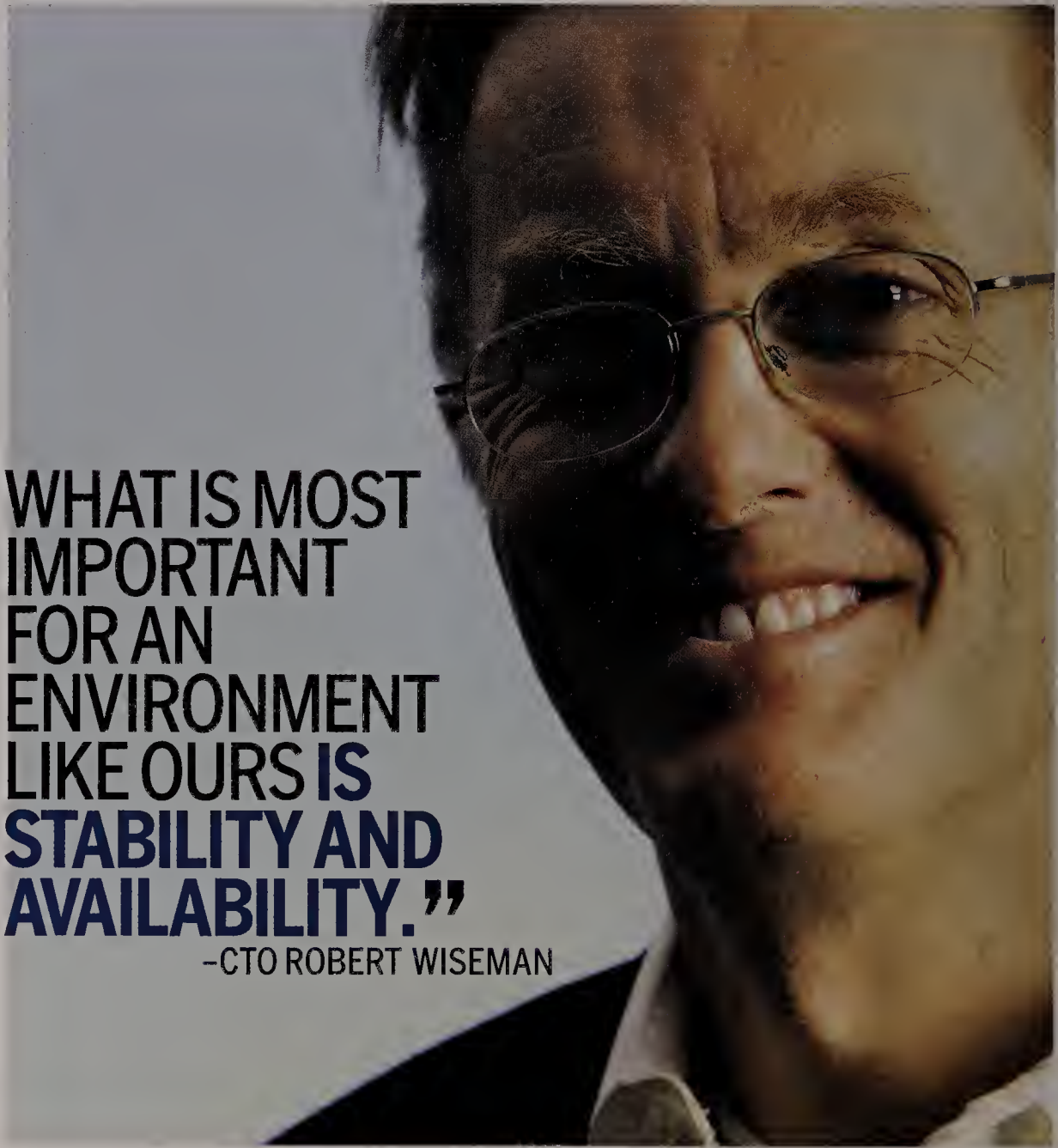
"In hindsight," says Lutz, "we shouldn't have tried to cut over to a new infrastructure at the same time we were deploying a new software application. It was too much at once."

Wiseman faults the limited testing of the new system—especially the storage servers—for the failure. "We were focused on testing [the performance of Linux on] individual servers, and we didn't have a full ratio of servers in the testing environment to predict the load on the storage servers," he says. Rather than falling back to the old platform at the first signs of trouble and reworking the new one, the engineers always thought the answer was around the corner. "We always believed that the next fix would solve our problems," recalls Wiseman. "Eventually it did, of course, but not without system slowdowns and occasional time-outs during high-peak periods for the next few days." To make sure the new system would remain stable over the long haul, the team decided to re-architect it after the failures in 2003, creating about

a dozen redundant clusters of 12 servers apiece, each using a new network-attached-storage architecture that Wiseman says was not utilized the first time. Each cluster is designed to handle the full transaction load of Fares, but if demand for a particular function starts to peak, a single server no longer faces down thousands of impatient travel agents on its own. Together, the clusters are designed to handle the largest experienced Fares peak, with 25 percent headroom for situations such as outages and fare wars. "The things that are most important for an environment like this are stability and availability," says Wiseman. "We've designed it so that the possibility of all those clusters failing at once is so small as to be almost incomprehensible."

The new architecture also makes testing more predictable and accurate. "We build a single complete cluster, and we can scale the results linearly," says Wiseman. "As long as our testing on one cluster is accurate, we can predict how it will scale over the rest because they are all the same."

Despite having to re-architect the Linux platform, Wiseman says the combination of Linux on Intel servers still saves more than 90 percent over Unix. All told, the platform cost for Fares for the three years beginning in 2001 went from a projected \$100 million for the



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mainframe to an estimated \$25 million for Unix to \$2.5 million for Linux, according to Lutz.

### CULTURE SHIFT

Yet hardware and software don't account for the entire picture in such an infrastructure change. "When anyone in my position makes a commitment to a new technology, it's not simply the cost of the project, it's the cost of everything moving forward," says Lutz. "You're retraining people. And so if you have a \$2 million dollar project to implement a Linux system, you're maybe making a \$10 million to \$15 million decision, because you're changing the whole course of IT development—training, support [and] application development."

The change to Linux and subsequent projects that use open source, such as Web services, has affected probably 50 percent of his 380-person staff, says Lutz. "Open source is propelling us to adopt Java and a new way of programming," he says. For some of his staff, those changes haven't been for the better, he says. "We had to reassign those who could not—or would not—move forward."

The staff (both applications developers and systems administrators) who did make the change had to become more aggressive and intuitive in finding solutions to problems on their own. "We have to have a higher degree of technical support internally now," says Lutz. "When you're working with [commercial software], there are pretty standard diagnostic methods to use when things don't work. [But] Red Hat isn't going to give us the solution to every problem," he adds, because it doesn't control the core development of Linux. "My teams have to be far better technically and in their problem-solving skills than before."

This frontier approach to problem solving has made architecture a more critical component of project planning and development, adds

## BUILD THE CASE FOR A LINUX INFRASTRUCTURE

Four things to consider when deciding whether to move to open source

**1 Estimate costs and benefits** of sticking with the current environment for the next one to three years. Factor in the cost of servers, operations, floor space and other expenses, and the benefits of staying with a known platform and support mechanisms.

**2 Conduct performance tests** to determine throughput on a Linux platform using Intel servers ("Lintel"). Use this data to calculate the number and cost of servers needed to support your system over one to three years.

**3 Estimate other costs**—including coding, testing, support, operations and training—and benefits of using Linux.

**4 Compare the costs** and benefits of the current environment versus the Lintel environment, and make your call. —C.K.

Lutz. "Before open source, our architects were much more involved at the beginning of the project and less at the end. Today, our architects are living with the architecture and living with the project teams, because the technology is more difficult to figure out, and the cause of problems are more difficult to diagnose." That has driven total costs up 5 percent for application development and support, as Lutz has brought in more architects and more skilled support people to manage the new infrastructure. "That is an easy price to pay for free software," he adds.

### LINUX WITHOUT FEAR

The savings from the new architecture have Cendant looking at an even more ambitious migration to Linux. The Fares application and infrastructure represent just 10 percent of the Galileo computing platform. The rest houses the massive collection of flight information for every airline, every route in the world, written in a 1970s-era mainframe language called the Transaction Processing Facility (TPF). "Unlike today's operating systems, TPF was designed almost exclusively for speed," says Wiseman.

Wiseman has no idea how many flocks of penguins he would need to displace the polar bear mainframe, but he is looking into it. Such a move would

put Galileo on the same infrastructure footing as the other pieces of Cendant Travel Distribution Services, most of which have a dotcom heritage. For example, Orbitz's infrastructure was built from scratch on Linux.

To Lutz, Linux has achieved its goal: to become a viable alternative to proprietary operating systems. He professes no interest in, nor understanding of, the mechanics of the open-source movement. "The Linux community is still a black box to me," he says.

The community is irrelevant to him, because the software can run his infrastructure, and he can buy enough support for it from vendors. "When I look at the constant reengineering we have to do within the travel agency business [to become more efficient], to me, there's no other solution besides open source, given our volumes, our transaction rates and the problems we have to solve."

The "black box" of open source has transformed into something any CIO can appreciate: reliable performance and consistent uptime. The penguin can fly now. **CIO**

### Share Your Opinion

Even though less than 10 percent of the Fortune 1000 have been willing to bet their core infrastructures on Linux, many CIOs are experimenting. **Do you have the frontier approach to problem solving that's needed?** Share your Linux success (or fear) with your colleagues. Go to the **ADD A COMMENT** section at the end of this article online. Find the link at [www.cio.com/070105](http://www.cio.com/070105).

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# How to Dig Out from Under Sarbanes-Oxley

Unless CIOs do Sarbanes-Oxley differently this time, it will cost even more money and cause even more pain. Here's how to avoid all (or at least most) of that.

BY BEN WORTHEN

## Reader ROI

- :: Why this year's audit will be different than the last
- :: How to determine which controls are necessary and which are not
- :: Software that can help automate the audit process

**THE DIRTY LITTLE SECRET** of the first Sarbanes-Oxley audit is that no one really knew what they were doing. Not the auditors, not the consultants, not you.

For Al Schmidt, vice president of IT for Arch Chemicals, that became painfully obvious during a September 2004 meeting in which his internal auditor, PricewaterhouseCoopers (PWC), and his external auditor, KPMG, discussed...auditing standards. (Sarbanes-Oxley mandates that companies have different internal and external auditors to avoid Enron-like conflicts of interest.)

As Arch employees and about five auditors from each firm sat silently, the lead partners of the two firms went back and forth for about 20 minutes, debating the different methodologies that each was using for the Sarbanes-Oxley 404 review of the \$1.2 billion specialty chemical manufacturer's internal controls. >>



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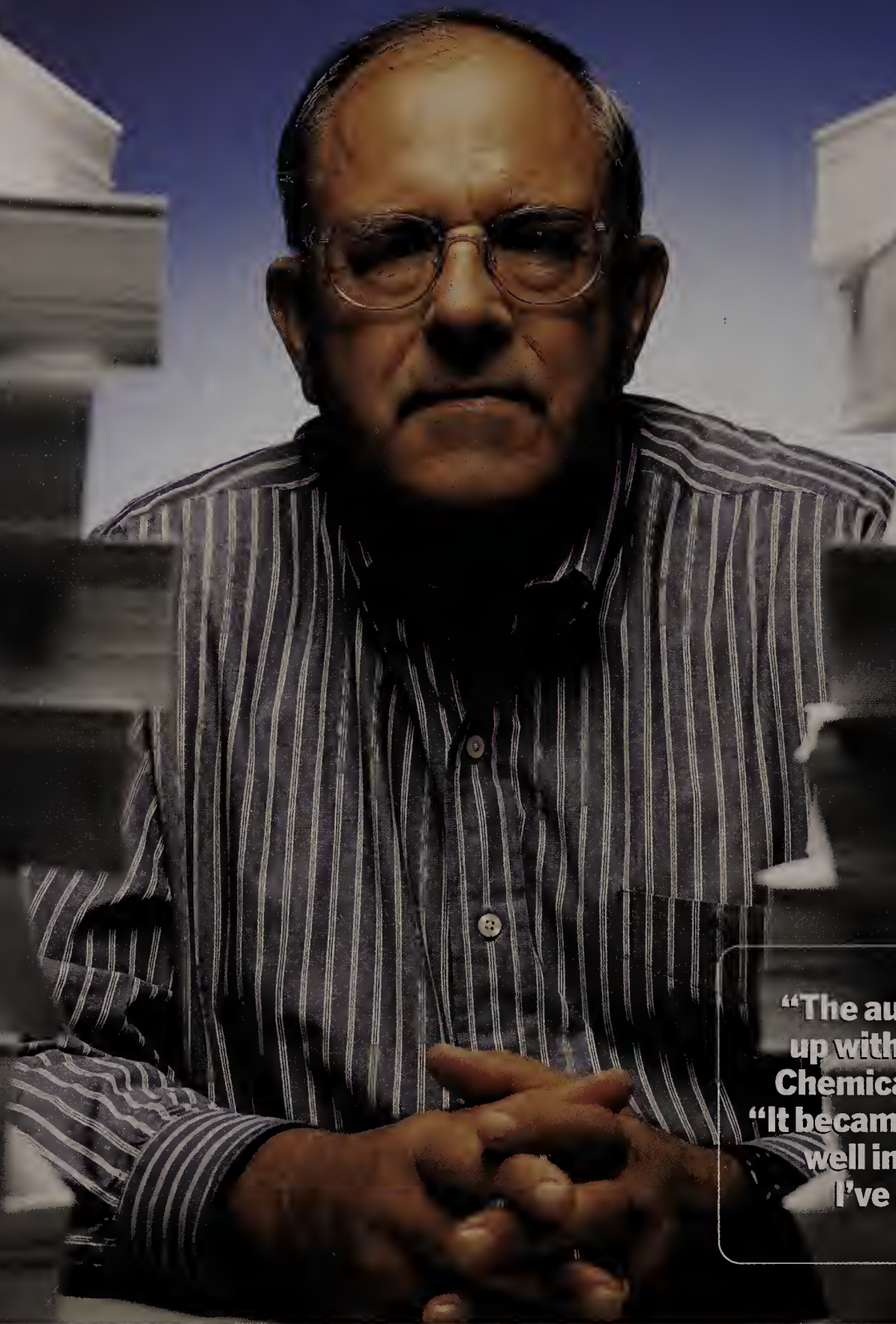
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**"The auditors kept coming up with issues," says Arch Chemicals CIO Al Schmidt. "It became time-consuming, well in excess of anything I've ever experienced."**

"Let's just say it was a learned discussion between two parties," Schmidt says.

"I was surprised that those details hadn't been ironed out ahead of time," he adds. "That was my introduction to the fact that the underlying issues [with the Sarbanes-Oxley audit] were not firm."

For Schmidt, that was also the beginning of a constant tug-of-war with his auditors, as control after control had to be created, tweaked or clarified. At times, it seemed to him as if the auditors were making up the rules as they went along. As a result, he feels that he only had time to react, focusing on passing the audit as opposed to coming up with long-term solutions to the weaknesses the audit exposed. He estimates that from the time the PWC consultants finished their first

review of his controls in the late fall until the end of the KPMG audit in mid-February, he devoted fully half his time to the audit.

"The auditors kept coming up with issues," says Schmidt. "It became time-consuming, well in excess of anything I've ever experienced."

## The Winter of Your Discontent

Schmidt's experience is typical. CIOs at companies with fiscal year-ends falling between Nov. 31 and Dec. 31 spent the last months of 2004 and the first months of 2005 on tasks ranging from developing controls for restricting user access in certain parts of certain



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systems to (according to Robert Sell, vice president and CIO of Eaton, a \$9.8 billion industrial manufacturing company) taking digital photographs of the smoke detector in a backup server closet.

And sending the auditors receipts for the batteries.

In almost every case, the controls that CIOs put in place were manual. Forrester Research estimates that fewer than 1,000 companies nationwide actually bought Sarbanes-Oxley software in 2004, and *CIO* has found that a number of companies that did haven't yet deployed it. There was just no time. Reflecting on her own Sarbanes-Oxley experience, Ann Harten, senior vice president and CIO of Sirva, a \$2.3 billion relocation services company, simply says, "We have to find a way to make this less painful."

But unless CIOs approach the second Sarbanes-Oxley IT audit differently from the first, chances are good that it will take even more time, cost even more money and cause even more pain. In the rush to meet the audit deadline, many CIOs put more controls in place than they really needed. That resulted in a lot of unnecessary work, which may actually double this year as they try to prove that those needless controls are being used. So while last year CIOs had to assign someone to check an application audit log, this year, in order to pass the audit, they will need to demonstrate that the check was performed regularly—a documentation challenge fully on par with last year's effort to install the control. In other words, Sarbanes-Oxley compliance has to be treated as an ongoing process. And the only way to follow this new process without crippling the IT department will be to automate as many of these controls as possible. If the audit log can be checked (and that check documented) by a computer, then a person doesn't have to do it.

In order to avoid another year-end crunch, CIOs will have to do two things in year two of Sarbanes-Oxley:

1. Reassess the controls they put in place last year, making sure that they are not spending time on controls not required by law.

2. Wherever possible, automate the controls that are left.

The good news is that there's a burgeoning market of software that can help CIOs manage the audit process and automate individual controls. The bad news is that there isn't yet software that can do both (see "Software That Helps," Page 64). That means CIOs will need to prioritize which controls to automate. In many cases, this process will, sadly, take years. But each control automated (or eliminated) means less work for the CIO, the IT department and even those #&%! auditors.

## How, Why and Where the Great IT Audit Went Wrong

When *CIO* first looked into the Sarbanes-Oxley Act more than two years ago, most companies viewed it as an issue for finance, not IT. In the year that followed, the majority of CIOs realized that the Act would affect them, but they weren't sure how. "In early 2004, I would have told you that it was going to be a minor event that wouldn't take up a lot of IT's time," says Schmidt.

It wasn't until companies conducted financial risk assessments in early 2004 that it dawned on them: The role that IT systems play to ensure the accuracy of financial data is, in fact, critical. But by then, it was spring, and CIOs had little time to do anything but react to what their auditors and consultants had told them to do in order to pass the audit. In most cases, they were told to install an IT control framework. While the Public Company Accounting Oversight Board (PCAOB), the quasi-governmental group established by Sarbanes-Oxley legislation to oversee the auditing process, endorsed the COSO control framework

## LOOK BACK IN RELIEF

So how did the first round of audits shake out? Not so bad.

**March 2005** was the first month that a large number of public companies filed annual reports with internal control attestations as required by Section 404 of the Sarbanes-Oxley Act. According to a review by *Compliance Week*, a corporate governance newsletter, only about 5 percent of the 1,852 10-Ks filed that month disclosed a material weakness—that is, a deficiency substantial enough that it could

prevent a company from detecting a problem with its financial statement in a timely manner—well below the 20 percent that auditors were predicting last fall. In toto, 116 companies disclosed a material weakness in March. Of those, only three—99 Cents Only Stores, Internap Network Services and AAON (an air-conditioning equipment maker)—had weaknesses related to IT controls, according

to *CIO*'s review of the Securities and Exchange Commission filings. Additionally, two companies—Brookstone and The Genlyte Group—warned the SEC in March that they would disclose material weaknesses because of IT controls in upcoming filings.

At press time, the SEC had not disciplined any of the companies that failed their audits. More surprisingly, neither had

Wall Street. According to a study published in *Compliance Week*, the median stock price change of the 116 flunking companies was zero. Only 18 companies saw their stock price drop more than 5 percent (the same number that saw their stock price rise), and most of the declines could be attributed to other causes, such as lower than expected sales forecasts.

—B.W.

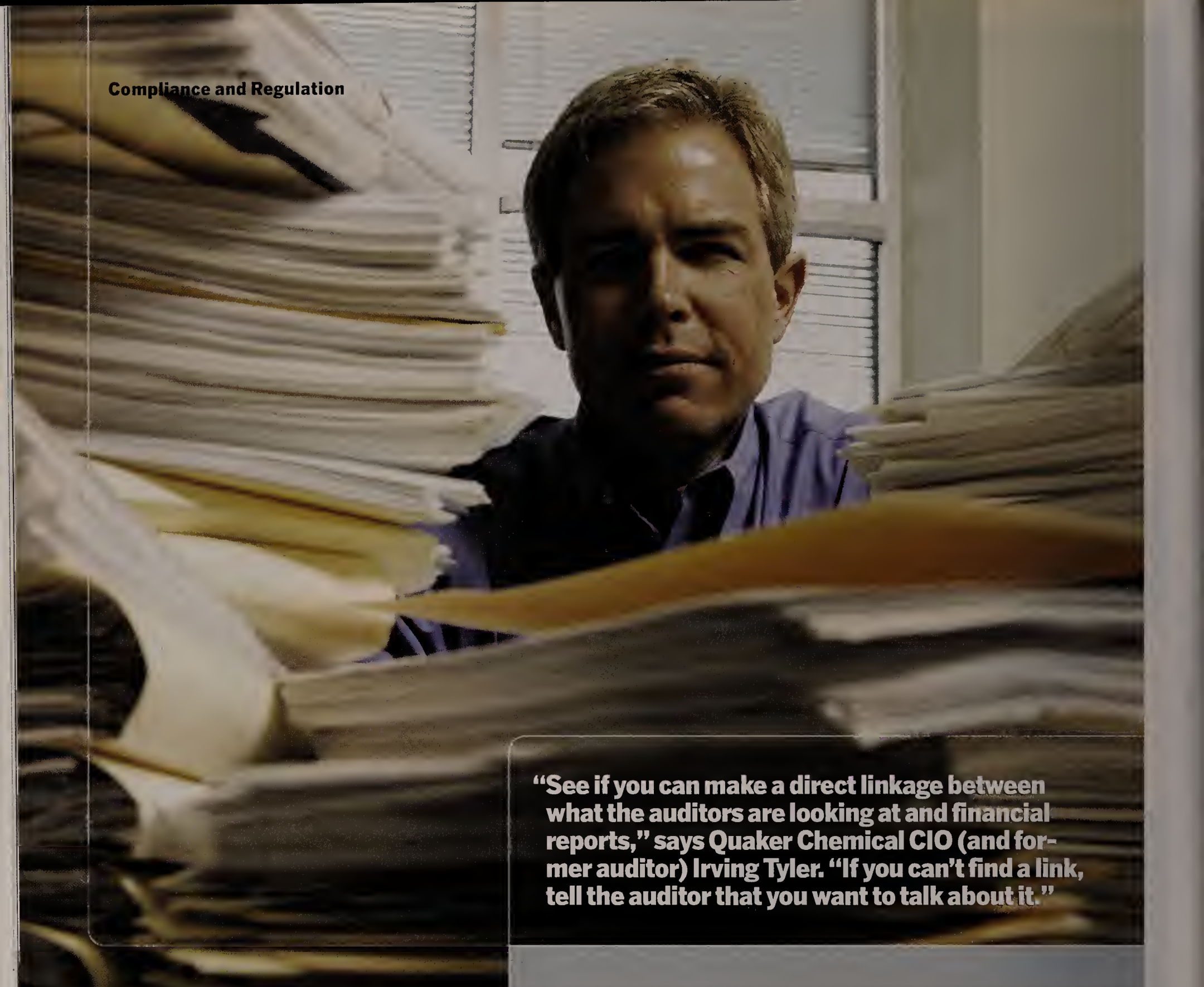
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**"See if you can make a direct linkage between what the auditors are looking at and financial reports," says Quaker Chemical CIO (and former auditor) Irving Tyler. "If you can't find a link, tell the auditor that you want to talk about it."**

for the financial audit, it failed to offer similar guidance for the IT audit. So auditors turned to preexisting IT control frameworks, such as Cobit, ITIL, ISO or even an auditor's own adaptation of COSO. COSO and Cobit are, respectively, 20-year-old and 10-year-old collections of guidelines and management principles for how to run a transparent enterprise, with Cobit being IT-specific. ITIL (which is gaining popularity) and ISO are IT management frameworks that recently crossed the Atlantic from Europe.

"Cobit is great from a management point of view, but not all of that applies to Sarbanes-Oxley," says Irving Tyler, CIO of \$400 million Quaker Chemical and himself a former auditor with Arthur Young & Co., now Ernst & Young. "There's lots of good advice and guidance in there that shouldn't be a part of a Sarbanes-Oxley audit."

CIOs who based their Sarbanes-Oxley compliance on these frameworks missed a key element of the regulation: While the Securities and Exchange Commission's initial interpretation of Sarbanes-Oxley required CIOs to audit *all* of their internal controls, the final version, released almost a year later, narrowed the focus to only those controls that directly affected financial reporting. But which controls affected financial reporting and which did not? There was no simple answer.

"Take an open port on the firewall," says Dave Erickson, a partner with PWC. "If you don't do a lot of e-commerce—if you're a plumbing company—it's hard to come up with a chain of events where that would end up affecting the financial statement. But if you're Amazon.com, it may be important."

Instead of focusing on key controls that would have an obvious impact on the finan-

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cials—such as who has access to what information, and who has the ability to make changes to the systems and applications—CIOs spent a lot of their time establishing general controls for IT; something that's good to do, but something that isn't necessary for Sarbanes-Oxley compliance. But internal auditors and consultants, who are paid to keep companies out of trouble, encouraged CIOs to put the extra controls in place. Better, they thought, to be safe than sorry.

"It seemed that auditors weren't interested in reducing scope as much as they wanted to get a broad canvas," says Tyler. "One asked me about my e-mail system, and I thought, What the hell does that have to do with financial reporting?" Unlike Tyler, however, most CIOs don't have auditing backgrounds, so they did not push back.

Complicating matters, external auditors, most of whom followed a strict interpretation of the PCAOB auditing guidelines, concluded that it would compromise the auditor's independence and the legitimacy of the audit to tell a client if it was establishing a control that wasn't necessary to pass. (In April 2005, PCAOB Chairman William McDonough acknowledged this and said that it was not the PCAOB's intent to prevent auditors from telling their clients that they were doing too much.) To be on the safe side, Barbara Schmit, CIO of Computer Network Technology, a \$366 million hardware manufacturer, put 185 IT controls in place last year. "I know it's too many," she says. "But my auditors wouldn't tell me which were significant. We had to guess."

The bottom line, says Erickson, is that CIOs went overboard.

In May, the PCAOB issued a formal advisory, instructing auditors to work with their clients to determine which controls are unnecessary.

Better late than never.

## Two To-Dos for Year Two

### 1. DISTINGUISH BETWEEN THE CONTROLS THAT MATTER AND THOSE THAT DON'T.

This year, CIOs need to make the controls required by Sarbanes-Oxley part of their everyday IT operations. This will require a combination of automating some processes, electronically monitoring others and enforcing the manual ones. But before embarking on automation projects or job training, CIOs need to make sure that the steps they're taking are really necessary. According to Erickson, that means examining the controls they deployed last year and asking themselves how a violation of a specific control could produce a misstatement of the company's finances. If the answer involves the world's most sophisticated hacker, or an asteroid crashing into your headquarters, then it doesn't need to be part of your audit, says Erickson. (See "The Top Five IT Control Weaknesses," this page.)

Tyler, the former auditor, says that "CIOs need to understand the requirements of 404 and should not take it for granted that all general computer controls need to be included.

"We had a lot of contentious discussions, but we fended off a lot of unnecessary controls," he says. For example, Tyler's auditor wanted to include user security for the corporate LAN in the audit, but Tyler was adamant that application security, not LAN security, was what mattered. "We have a single-instance ERP, and it's Web-based," Tyler

## THE TOP FIVE I.T. CONTROL WEAKNESSES

Auditors saw the same problems over and over. Here they are, in order of frequency.

**1 Failure to segregate duties within applications, and failure to set up new accounts and terminate old ones in a timely manner.** This was the biggie. Most companies didn't have processes in place to make sure that when people switched divisions, their access to applications changed to reflect their new responsibilities. The CIOs interviewed for this article all reported establishing manual controls to address this problem for the first audit. Even Microsoft.

**2 Lack of proper oversight for making application changes.** In most organizations, a system administrator was responsible for all the changes to an application. But in order to pass the IT audit, CIOs had to appoint a person to make a change and another to perform quality assurance on it. And it had to be demonstrated that this procedure was being followed.

**3 Inadequate review of audit logs.** Most CIOs assigned someone to review application audit logs to make sure that systems were running smoothly. But with Sarbanes-Oxley, just performing the check no longer cuts it; you have to prove that it was done. In other words, you have to create an audit log of your audit log.

**4 Failure to identify abnormal transactions in a timely manner.** This is a classic IT problem that can often be fixed by making changes to the application so that it notifies you when there is a transaction that doesn't conform to preestablished rules.

**5 Lack of understanding of key system configurations.** It turned out that many IT departments weren't as smart as they thought they were. The solution to this weakness is simple: better training. —B.W.

says. In other words, the best LAN security in the world wouldn't protect the ERP system from someone accessing it over the Internet. The issue that could affect Quaker's financial statement, Tyler told his auditor, "is someone getting access to the *application*. The LAN doesn't have anything to do with my financials."

Taking many general IT controls out of the scope of Sarbanes-Oxley has given Tyler time to focus on the controls that matter.

"See if you can make a direct linkage between what the auditors are looking at and financial reports," says Tyler. "Spend time analyzing it now. If you can't find a link, tell the auditor that you want to talk."



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### 2. AUTOMATE THE CRITICAL CONTROLS.

Only after reducing the number of controls should CIOs start automating. In order to do that, there are two types of software to look at. The first is a new generation of document management software that can marry a company's controls with the workflow monitoring necessary to prove that the controls are being observed. Last year, most CIOs relied on old document repositories or other tools that they already owned. Eaton's Sell mapped his department's controls on an Excel spreadsheet, color-coded red, yellow and green to reflect each control's status. He says that he hopes to transfer this information to more robust Sarbanes-Oxley-specific software when he finds a suitable package from a major vendor.

The second type of software that CIOs should look for in 2005 is

## SOFTWARE THAT HELPS

"Compliance solutions" combine document and content management, workflow, and monitoring to help map and follow the required processes for each Sarbanes-Oxley-mandated control. In a recent study, Forrester Research Vice President and analyst Paul Hamerman identified the top nine compliance vendors based on market share and quality, and determined that their products fall into three categories, each with strengths and weaknesses.

» **The major ERP vendors:** SAP, Oracle and PeopleSoft have products that work if you have their system in place. But their products don't integrate well with other systems, and they tend to be earlier, less sophisticated releases than other compliance software.

» **Integration and content management vendors:** IBM and Stellent provide a good technical foundation for mapping processes and tracking compliance, but not necessarily at the depth required to pass the IT audit.

» **Sarbanes-Oxley pureplays:** OpenPages, Paisley Consulting, Certus and Handysoft have the most comprehensive and user-friendly products. But their ability to integrate with the systems that companies already have in place varies.

The other investment CIOs may want to make is in software that can help automate some of the more complicated controls, such as change management or segregation of duties. IDC Research Director Melissa Webster says that several vendors now make products that can manage companywide application changes with the level of integration necessary to help prove Sarbanes-Oxley compliance. However, CIOs will need to approach each control as an individual project. Applications that can automate controls for, say, change management have been developed specifically for that task, not others. CIOs looking for a single Sarbanes-Oxley application that can manage their audit and automate their controls will probably be looking for a very long time.

—B.W.

a tool that can automate some of the more complex controls. For example, almost every IT department had a problem enforcing the proper segregation of duties within applications. Companies in general don't do a good job keeping track of employees who have left the organization, or who have taken on new roles in different departments. Sell says that his current control requires systems administrators to run one report that shows what permissions users have inside a system and another report, extracted from the HR system, that shows what permissions the users should have. Then, the two are compared. "It's highly manual," he says.

Forrester Research Vice President and analyst Paul Hamerman says software that could automate some of these more complicated controls wasn't widely available in the first half of 2004, but it should be now. Other analysts note, however, that they have yet to see a single application that can handle both workflow monitoring and permission tracking.

Even after every possible control is automated, CIOs will still have to ensure that employees are following the new processes, which, in many cases, make operations less efficient. For example, a system administrator who used to be able to make a simple application update now has to get approval from someone else before it goes into production. Workflow applications can ensure that the approval is requested, received and documented, but all that takes time. Howard Wright, senior vice president of IT governance at Countrywide Financial, hopes that people will start making change requests earlier.

In fact, Countrywide Financial has created an IT governance organization that is specifically designed to help people figure out these new protocols. Wright is looking for ways to improve processes, and promote awareness of and compliance with them, but acknowledges that he's just getting started. He's handing out prizes to people who follow the new protocols properly. "You'd be surprised what people will do for a nice golf shirt," he says.

Anyway, it's a start.

## What About Year Three?

The documentation work that CIOs will do this year can be an important source for future process refinement. While most CIOs will not have a chance to begin process reengineering projects in 2005, those projects (and the resulting improved efficiency) have the potential to be the one chance that CIOs have to realize a return on their Sarbanes-Oxley investment—that is, to wring some business value out of what to date has been a huge time and money sink.

Nortel CIO Albert Hitchcock says that his company is already attempting to do just that. "We are trying to use Sarbanes-Oxley as a catalyst to improve underlying processes," he says. Some of his goals include reducing the number of financial systems and eliminating some of the handoffs for manual processes. "We are hoping," says Hitchcock, "that this leads to a cleaner, more efficient model."

A hope shared by all. **CIO**

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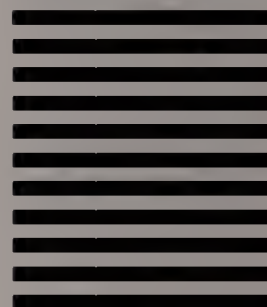
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A man with dark, slightly messy hair, wearing a white dress shirt and a dark tie with small, light-colored polka dots. He has a thoughtful or perhaps slightly skeptical expression on his face, with his eyebrows slightly furrowed and his mouth slightly open. The background is a solid, warm brown color.

## **Short-term view:**

It's very hard to take three days out of the office to attend a conference. Long-term thinking sounds great, but I have immediate issues to deal with. Will I get enough actionable ideas to make the time worthwhile?

## **Long-term view:**

How can we meet our short-term needs, while getting beyond the quick-fix mentality, the "live for today" mind-set that seems to dictate how we conduct our businesses, run our educational institutions, and choose our nation's priorities?

**This year, at CIO Magazine's third annual forward-looking meeting for CIOs and senior IT executives**, we explore reconciling the short and long-term views in the Economy, Politics, IT Jobs and People, Law and Society, Technology, Global Sourcing, Security and the Future of IT.

## **KEY TOPICS WE'LL EXPLORE:**

**Knowledge Management: Capturing the Past and Present**  
We'll continue to face a knowledge drain as we offshore higher-level work and as retiring baby boomers take veteran managers and workers out of US organizations. How big is the problem, and what should we be doing about it?

### **Driving the Future: Business Intelligence**

For many of us, business intelligence will become a driving force, enabling organizations to truly transform how we see products, customers and processes. Why and how will BI be integral to business models going forward? Why do BI initiatives often fail?

### **IT Spending: Is Outsourcing Losing Luster?**

We've spent countless dollars on outsourcing projects — and countless hours trying to effectively manage and measure them. With rising concerns about security, loss of intellectual capital and institutional knowledge, are more companies shying away from long-term contracts and cutting shorter-term deals?

### **Regulatory Rundown: A Look Ahead**

How are SOX, HIPAA, SEC 17A-4, Gramm-Leach-Bliley, Patriot Act and a host of other regulations currently evolving and being enforced? What else is percolating through the state and federal systems that could have a significant impact on the way we do business?

### **Reconciling the Short and Long-Term Goals in Transforming the Business**

The state of the relationship between the CEO and the CIO is crucial. How do we get smart short and long-term thinking from both to ensure the health of the organization — especially when the business is undergoing a major transformation?

### **Can the US Remain Competitive in Science and Technology?**

What can the US government, educational institutions and businesses do to keep us leading in an increasingly competitive global marketplace? Can CIOs and their organizations take an active role?

### **The Untied States of America?**

Are several forces threatening to untie the United States, just as they are fragmenting other large countries around the world into smaller ones? What does that mean for our ability to do business here and in the global arena?

### **Why Globalization Can Work**

Is the biggest obstacle to global economic progress the failure of the global market — or is it the failure of politics and governments in rich and poor countries alike?

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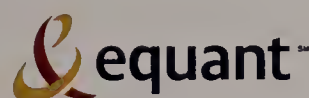
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VIEW



from the TOP

# IT Energizer

BY RICHARD PASTORE

Southern Company CFO Tom Fanning says **it's a mistake to view IT as a cost center.** He wants investment in new systems to power the bottom line.

Southern Company is a model of stability. As the dominant utility holding company in the Southeast, Southern has paid a dividend to shareholders every year since 1948. It's made *Fortune's* list of America's most admired companies for the past three years, with high satisfaction ratings on reliable service from its 4 million electric customers. Meanwhile, the company's retail rates are 15 percent below the national average.

To maintain this low-cost, high-level service, and to keep those dividends coming, Southern leverages IT to drive efficiency and reduce risk across its five major utility companies and cross-enterprise business functions. At the same time, Southern needs IT to be a responsive growth enabler for its more aggressive, competitive businesses—such as wholesalers Southern Power, Southern Company Gas and Southern Telecom.

Tom Fanning became executive vice president and CFO at Atlanta-based Southern in 2003. Fanning, 48, joined the fold in 1980. Although he most recently served as president and CEO of subsidiary Gulf Power, much of his Southern career has been as a CFO for its sub-

**THIS IS ONE OF** a series of interviews with CEOs and other C-level executives about the role of IT in their companies and what they expect from their CIOs.

**COMING AUG. 15:** National Gypsum CEO Tom Nelson. For previous View from the Top interviews, go to [www.cio.com/specialreports](http://www.cio.com/specialreports).

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**SOUTHERN COMPANY  
CFO TOM FANNING  
EXPECTS I.T. TO...**

- :: Drive efficiencies through process automation and standardization**
- :: Manage the IT function as a competitive business**
- :: Integrate systems to reduce business risk**

subsidiaries. (His master's degree from Georgia Tech is in finance.) However, he also did a stint in the mid-1990s as Southern's CIO, initiating wholesale restructuring of the IT function, centralizing authority for IT, and launching a chargeback program to build transparency and financial discipline (see "Seeing Is Believing," [www.cio.com/070105](http://www.cio.com/070105)).

An exultant Boston Red Sox fan, Fanning eagerly shows off his Sox memorabilia to a Massachusetts-based visitor and points out the friendly war he wages with office rival Mary Weaver, executive assistant to the chief marketing officer, a flagrant Yankees fan whose prominently displayed

team ball Fanning must pass by daily. Fanning spoke with former *CIO* Editor Richard Pastore about how IT reduces risk, why CIOs should not report to CFOs and how IT governance works at Southern.

**CIO: Most CIOs bristle when people label IT a utility—something that mainly keeps the lights on. But one could assume the one place that label would be accurate and appropriate would be at a utility company. Do you see IT's role that way at Southern?**

**Tom Fanning:** No. For us, IT is a differen-

tiator. It is absolutely in Southern Company's interest to keep prices as low as they can be. Our success is driven in part by running the most efficient systems we can and, therefore, relying less and less on rate increases. So from a financial perspective, the differentiator is how we create an efficient infrastructure.

**What's a good example of how IT has made a competitively efficient infrastructure?**

To garner as much efficiency among all of Southern's power companies, we have a very mobile workforce. For example, I was

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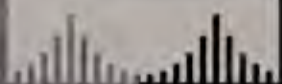
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at three companies yesterday. I went to Alabama, went down to Florida and also traveled around Georgia. And in all these different points, I was able to get on a desktop computer and, through my own unique password and ID, call up my own desktop setup. We've taken the P out of PC. In other words, there's no such thing as a personal computer anymore. They are no more personal than a desktop telephone. That allows a tremendous amount of flexibility in terms of location, in terms of being able to communicate. Our ability to do that comes from having a simplified, standardized, ubiquitous IT infrastructure called Home Run, which was a project led by IT. Having that also means your support costs go way down. I learned in my time as CIO that the cost of [not having standards] is way bigger than we all think it is.

**As the CFO for Southern, what are your top concerns? Assume we know nothing about the CFO mind-set.**

Piece of cake. At the end of the day, I want to make sure the share price is as good as it can be. And therefore, what I focus on are elements of risk and return. Return is driven by how much top-line growth I can have—and then by how much I can keep expenses in line with that growth. That produces my profit. So I want to be as efficient as I can from an operation standpoint; I want to have the broadest and deepest relationships with customers; I want to have products that will incentivize growth of our revenue streams. IT is fundamental to each one of those things. But I think what is ignored more often in corporate America is risk. Given the kind of company we are, risk is as important as return. We are able to reduce risk by running a much more integrated utility system, and frankly, this flies in the face of some moves in other parts of the United States to [break up] utilities. Because of our standard, ubiquitous IT infrastructure, we have much greater operational control across the integrated business lines that are making, moving and selling electricity. When there is a problem,

we don't have confused lines of communication on how to solve it. Everything is in one tent, if you will.

**Many companies, often following a CFO's vision, have turned toward outsourcing IT to create greater efficiencies. How do you view outsourcing?**

I think inflexibility causes risk. That's the premise of my judgment on outsourcing. When you outsource, you are cashing in your options. You're making a bet that certainly could provide some near-term gratification, but you preclude your options in how you run your business and how you deal with customers. To the extent you have introduced a third party into your operation or into your interface with customers, that creates a tremendous amount of risk. And unless the payoff is not only significant but also long-lasting, that is a risk I'm not willing to take.

**You're talking about more widespread outsourcing rather than primarily niche applications?**

I don't mind outsourcing niche applications. And if you want to use a rule of thumb, I'm more willing to outsource things that the customer never sees or very seldom touches.

**Yet Southern's IT function operates as if it is competing with outside providers, continuously benchmarking its costs and service levels against the market.**

In the mid-'90s, we went through a really large market test that compared internal IT to outside, third-party providers. We found



**SNAPSHOT:  
Southern  
Company**

**HEADQUARTERS:**  
Atlanta

**INDUSTRY:**  
Energy

**2004 REVENUE:**  
\$11.9 billion

**2004 NET INCOME:**  
\$1.53 billion

**EMPLOYEES:**  
25,762

**I.T. BUDGET:**  
\$245 million

**I.T. EMPLOYEES:**  
986

**CIO**  
Rebecca Blalock

that if we keep the service quality constant, our ability to deliver is better than the external market's ability to deliver. But the world never stands still; if our ability to deliver is not as good as the third party's, then we need to improve how we're doing it, stop doing it or think about outsourcing it. That provides a great discipline to run IT as a business internally. You know, this notion that somehow we're regulated and insulated from competition, that absolutely is not true. We compete [as a company, and the IT group competes] with the outside world every day. And I think adopting that rigor

is a great discipline for us all to follow.

**Our research has shown a steady increase in the number of CIOs reporting to CFOs in the past few years. Why do you think that is, and why doesn't Southern's CIO, Rebecca Blalock, report to you?**

I think the model of the CIO reporting to the CFO is for companies that view IT as a cost center. And I think that's an incorrect ongoing business model. IT should not be viewed as a cost center. IT is inextricably intertwined with the different business units of Southern. For example: They're involved with generation; they're a part of transmission; they're a part of marketing. There's very little of IT that is just IT; I suppose that would be the backbone infrastructure, the network, the mainframe.

Becky reports to our general counsel, but her larger interface is with the different business units. Becky has an advisory council of very high-ranking members from [our different business units]—really, a board of directors of her major customers.



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She's as much a part of those businesses as she is running her own business.

**Yet she is not a member of Southern's top management council.**

That's only because Southern's a pretty big organization with lots of different subsidiaries. We've got to keep simple, to some extent, how many participants sit at the table.

**Then how do you expect her to be a key business player?**

When I was CIO, I always thought I had an absolute free avenue to express my views with the chairman of the company. Number one: You need to depend upon the CIO, in a very collegial manner, to advance the interests of the strategy of the corporation. Number two: Make sure that you've got effective sponsorship at the management council level. Becky's boss, [Executive Vice President and General Counsel] Ed Holland, is certainly able to represent the interests of IT. And frequently Becky comes to the management council and directly represents her issues.

**What, for example, would she bring to the council?**

Recently, it was a whole budget discussion around the notion that one of the ways we're going to become more efficient, more reliable and keep prices low may be to spend more money in IT. If I just viewed IT as a cost center, then I would view success as keeping IT costs down. In fact, you may want to spend strategically more money on information resources.

**You may be the first CFO I've ever heard say publicly that it might be wise to spend more money on IT. How do you decide whether to make an IT investment?**

We're a big EVA [economic value added] shop, and we have the business unit be the sponsor. The CIO in charge of generation will work with the management of generation to advance an idea. The sponsor, then,

**"What you find in a big organization is data overload; there is data everywhere. What I tell folks is, give me information and not data."**

*—Tom Fanning, CFO  
Southern Company*

becomes not IT but generation ultimately. Generation is the unit that will have to commit to the cost, the implementation schedule, the functionality and the forward-looking improvement in its operation. That is, we remove the expected efficiencies and benefits from future business budgets. In advance.

Some systems are tougher because the ownership is not so clear. For example, CSS, our customer service system, is a hugely integrated dynamic customer management system common to all [our] companies. It enables us to do virtual call centers so that even local towns in southern Georgia, if they need to, during peak periods, can handle calls that originate out of Mississippi. With this, we can virtually guarantee that 90 percent of our customers will have the phone answered within 20 seconds. This type of system requires teamwork—broad cross-company, cross-functional representation and support—and we'll set up met-

rics to track it. When we put a system in place and commit to the cost, we follow it like hawks. Our success rate in putting in a new system, in having it work the way we want, in extracting efficiencies, is up, I think, in the 80 percent to 90 percent range.

**What role do you personally play in IT governance?**

Every business unit has something called a technology leadership team, with representatives from the IT organization and from the functional business unit. What they do is talk strategically about the issues facing the organization and how IT can best solve those problems. These teams report through the different business units, but also report to the CFO functions in all the businesses. What we [company financial officers] are interested in is driving as much efficiency in the organization as possible, and we see technology as the point of the spear in helping to drive that. We want to make sure that IT's process improvement ideas have a sponsor, that they don't have to only rely on [business unit sponsorship].

**What's something you want to see improved in IT?**

I'll give you a selfish viewpoint here: [Southern Chairman and CEO] David Ratcliffe and I have to sign these certification statements every quarter; we have a legal liability for everything inside the corporation. It is so clear now to me that ignorance is not an excuse. We really need to know everything that's going on. The lines of communication, the sharing of information and the import of that information are so much more highlighted now. But what you find in a big organization is data overload; there is data everywhere. What I tell folks is, give me information and not data. IT can really assist in turning immeasurable amounts of data into important, usable information. That's something everybody's got to get better at. **CIO**

Former CIO Editor Richard Pastore is now managing director of content development with the CIO Executive Council. He can be reached at [rpastore@cio.com](mailto:rpastore@cio.com).

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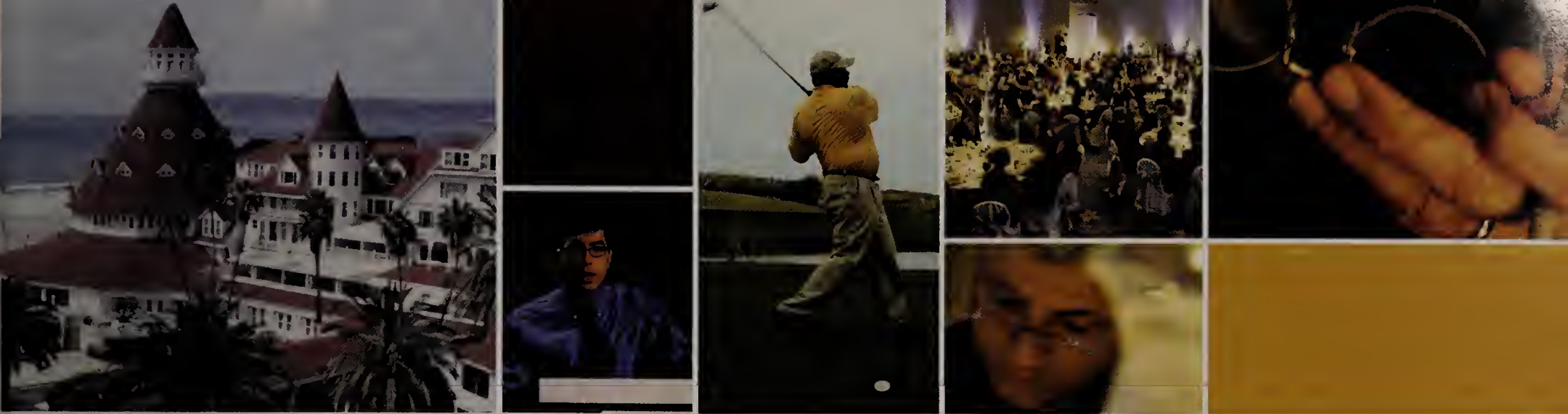


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## Session Highlights

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### Designing the Future

Many sophisticated companies are turning to design schools for a new edge. Discover how you can become a real innovator.

### Innovation in Customer Service

Customer service is downright crucial to success. Award-winning CIOs talk about how IT delivers cutting-edge customer service at their organizations.

### Building Innovation in IT

What makes some IT organizations adept at innovation? Is it luck, talent and timing, or is it an approach that can be learned? CIOs share how they've made innovation a key part of their organizations.

### A Global Community Resolves R&D Problems

Companies such as Lilly, Dow, BASF, P&G, Rohm and Haas and DuPont draw on the talents of the InnoCentive global scientific community. What are the lessons we can learn from its creation and success?

### Leadership: Great Ideas Need Great Execution

Noted *CIO* columnist Michael Schrage argues that organizations fall into a trap when it comes to innovation by focusing too much energy on the beginning of the process and not enough on the details of execution. But you can avoid the trap!

### To Boldly Go...The Future of the Internet

What can we do to further the boom in Internet innovation while managing the forces that will otherwise throttle it?

### Support Innovation Through Business Processes

Do your business processes enable your organization to efficiently develop products and effectively manage the workflow or are they more apt to stifle innovation?

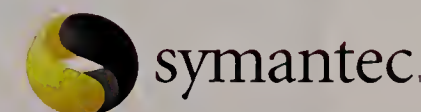
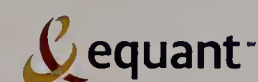
### A Primer on Promising Technologies

What innovative technologies are really cool — and have real-world business applications? Savvy executives share their thoughts on what we'll be buying — and why.

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Our panel shares some of the tools and best practices leading CIOs use to foster innovation while meeting the rigorous demands for productivity and efficiency.

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## How to Improve Outsourcer Relationships

**W**hen Jeff O'Hare came to Cendant in April 2003, he was given a mandate: Fix a major outsourcing relationship that had become ugly just one and a half years into a 10-year contract. Cendant's CIO recognized that O'Hare's specific turnaround experience in two different organizations would do wonders in getting the relationship back on track.

Instead of using a cookie-cutter approach to fix the relationship, O'Hare, the senior vice president of corporate IT, took a step back to analyze its specific problems. "I needed to get information about what was going wrong, so I went to those who sit on the front lines," says O'Hare. "By speaking with my own staff, the outsourcer's

management team and the outsourcing technical staff, I was able to get a better idea of the challenges and what was happening day-to-day." After doing this, O'Hare could put the right solutions into action.

Below, O'Hare shares the solutions that helped him turn a problematic outsourcing relationship into a successful one.

### 1] Create an IT governance structure.

With no governance model in place, there was no struc-

ture or formal direction set for either the outsourcer or Cendant's business units. Within the first month of coming on board, O'Hare created a formal governance process. Components of the governance model included a customer relationship framework to improve communication with the business units;

a framework to examine service delivery from vendors in terms of monitoring adherence to service-level agreements (SLAs) and project execution; a contract team and project management office to manage contract ownership, requests for services, billing and new service proposals; and a vendor technology group to drive technology strategy that was unbiased and vendor-agnostic. All staff hired into the new IT governance model had good communication skills and strong customer-facing skills and were creative problem-solvers.

**2] Base the outsourcer relationship on fact, not emotion.** At the vendor meetings in which he participated, O'Hare found the body language of both his staff and the outsourcing staff to be telling. Behind the rolling eyes, folded arms and other nonverbal cues, O'Hare saw

*Continued on Page 80*



## Bargaining Chips

CIOs bring a number of leverage points to the table when negotiating vendor agreements. These are the top five:

- 1 Client organization does significant business with current vendor.
- 2 Multiyear working relationship exists between vendor and client.
- 3 Client organization has strong reputation and brand name.
- 4 Client organization provides vendor with entrée to new vertical market.
- 5 Client organization has a large IT budget.

# 89%

of CIOs think  
they can influence  
vendors' licensing  
practices

SOURCE: Informal poll of 35 CIO Executive Council members, May 2005



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## [PEER COUNSEL]

**Q:**

Do you dedicate a person or a function to evaluate your vendors?

**A:****RICHARD MALMBERG**

Director, strategic relationships, information technology, Northrop Grumman

Our IT sector's strategic sourcing and contract management organization performs formal vendor evaluations quarterly. Our team conducts a Web-based survey to gather key-supplier assessments

from our seven sectors and the corporate office.

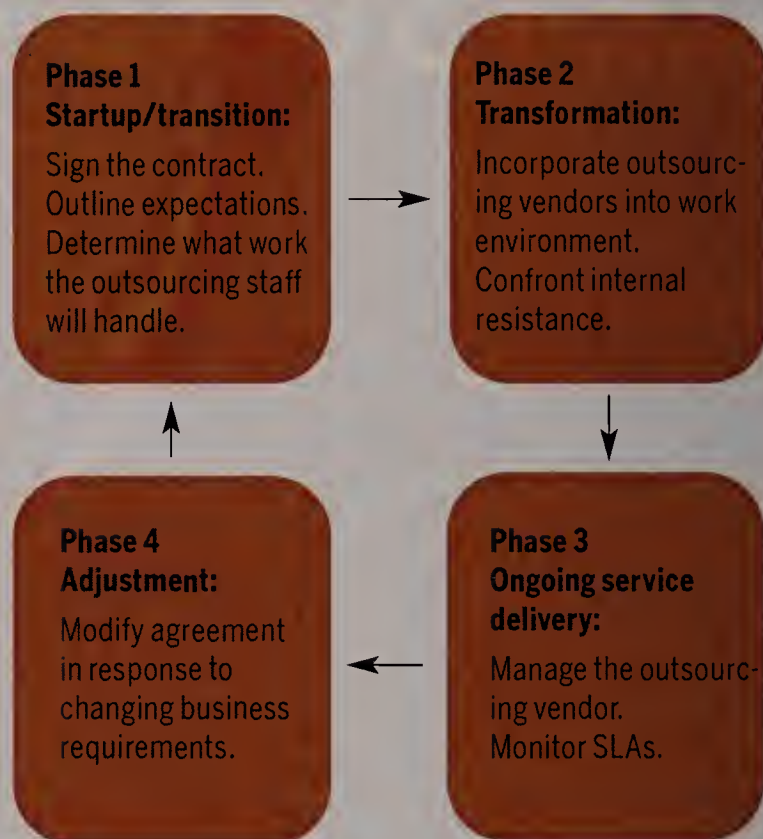
This tool includes four evaluation categories: delivery, quality, cooperation/responsiveness and integrity. The rating scale, in descending order, is blue (exceeds expectations), green (meets expectations), yellow (marginal) and red (noticeably less than expected). Evaluators are asked to justify any rating that falls below "meets expectations." Then we communicate the average rating for each category, overall average score and applicable comments to the vendor.

As the next step, we instruct vendors to write a corrective action plan that addresses the unsatisfactory rating's root cause. The plan is then forwarded to the IT procurement organization to verify its validity and completeness. The IT sector's senior management is also apprised of the analysis and the corrective action plan.

**Outsourcer Relationships** *Continued from Page 78*

ineffective communication, blame and mistrust. In fact, the situation had gotten so bad that the outsourcer had purposely moved its relationship staff offices to avoid being in the same building as Cendant staff. They conducted meetings mainly via conference calls instead of face-to-face, even though the buildings were only a few miles apart.

As a first step, O'Hare worked with the outsourcing vendor to move staff members back into their original offices. With both teams

**On Managing the Vendor Relationship**

SOURCE: JEFF O'HARE, SENIOR VP OF CORPORATE IT, CENDANT

## [ONE::LINER]

**"You have to treat vendors like employees. When evaluating performance, you've got to tell them the good stuff and the bad stuff and then manage accordingly."**

—JOHN VON STEIN, EXECUTIVE VP AND CIO,  
THE OPTIONS CLEARING CORP.

colocated, it was easier to hold in-person meetings than to rely on e-mail or the phone, where communication could easily be misinterpreted. "If the meeting was getting overly emotional in nature, I would interject, ask the participants to focus on providing the facts and then try to understand what really happened," he says. Once O'Hare uncovered the facts, it was easier to understand the real problem, identify a solution and move forward.

**3] Adjust service levels.** Although the contracted service levels with the outsourcer worked well in the beginning, changing business needs dictated that new ones be put in place. O'Hare evaluated the contract SLAs and metrics, and made the necessary changes to make sure they were serving the right purpose. He reviewed them on a regular basis to ensure that his team had sufficient oversight of the vendor's work. "Having the contract flexibility to make the necessary adjustments in service levels is a must in a fast-changing business environment," says O'Hare.

—Carrie Mathews, Member Services Manager, CIO Executive Council

# Fast Track

## → Alignment

### Responding to Threats and Opportunities Quickly Requires Aligning IT with Your Business: How Two CIOs Closed the "Alignment Gap" With a New Approach

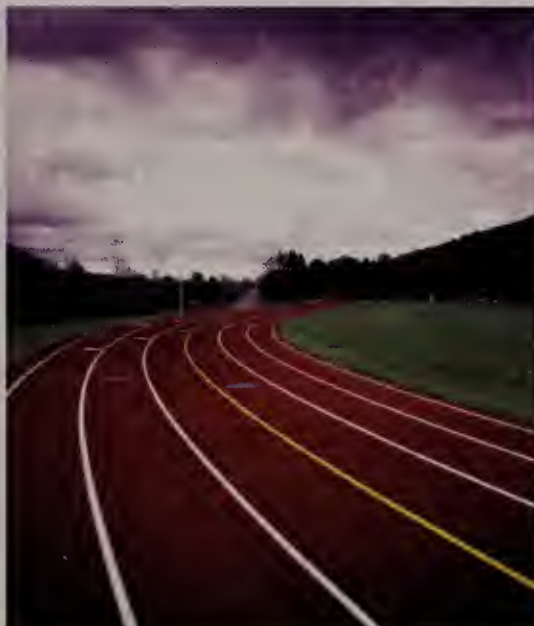
An insurance company with more than \$13 billion in assets finds its potential online customers slipping through its fingers. Another enterprise—one that prides itself on its expertise in building customer loyalty—can't quite harness the customer information of its clients to comply with service levels.

Two unique process breakdowns, one common solution: Alignment.

These two companies required business process/IT alignment to quickly harmonize existing technology with business strategies, goals and processes. To achieve alignment—a task they realized surpasses traditional solutions—they turned to AptSoft's unique technology that supports a new approach: Complex Event Processing (CEP).

The AptSoft results are impressive: Development timeframes shrank from months to days and increased revenues and reduced costs were captured within weeks of deployment, resulting in double- and even triple-digit ROIs. Read on to learn how these CIOs closed

the alignment gap—and then see whether your organization is ready to take the AptSoft Challenge!

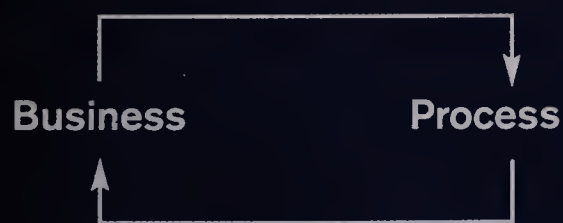


#### Alignment and CEP for Fraud, Compliance and Cross-sell

For years, business process/IT alignment—defined as the ability for IT to control the execution of the right process, at the right time, in the right sequence, for the right business purpose—has involved predictable, static, straight-through processing requirements. But today's challenges, including fraud prevention, compliance verification and cross-selling, pose unique challenges to alignment because they involve unpredictable, dynamic and closed-loop requirements. Indeed, as more companies grasp the impact of this shift, alignment translates into a competitiveness issue, says Mark Ehr, research director at

Enterprise Management Associates, a technology analyst firm. "Particularly in verticals such as financial services, people are jumping on the [alignment] bandwagon because they realize they must do so in order to stay competitive," Ehr says.

Because alignment requires IT infrastructure to perform at new levels of speed, cost-effectiveness, flexibility and collaboration between systems, machines and people, progress is almost always frustratingly slow. One of the challenges is that traditional process management solutions require generous doses of brittle custom code to handle the new requirements. Now there's a better approach—Aptsoft's Complex Event Processing technology, which senses event patterns in all layers of IT infrastructure, evaluates them and generates responses in real time. "We are seeing a lot of movement toward event-driven technology—which could help bring about the ultimate in alignment between IT and business," says Les Yeaman, founder of New Rochelle, N.Y.-based ebizQ.net, a Web portal focused on business integration.



### Alignment Gap

CIOs realize that the alignment gap is a barrier to greater agility.

#### Existing Systems

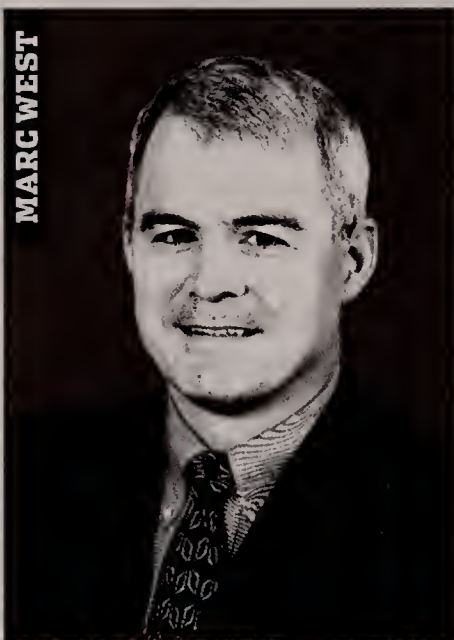
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# CASE STUDY

## PARTNERING WITH VENDORS

MARC WEST



LYNNE WILSON



**H&R Block's vendor philosophy** is unique; it brings value and benefits beyond the purchase of goods. H&R Block identifies certain outsourcing vendors with which it forms partnerships. Senior Vice President and CIO Marc West estimates that 15 percent to 20 percent of the company's supplier base will fall into the partnership realm. "When working with partners, our core thought is how we can leverage the amount of money we spend with them to gain access to broader market channels for our products, using these relationships as a basis," says West.

Different categories of vendors can be partners, says Lynne Wilson, enterprise IT division information officer at H&R Block. "Consulting firms, software vendors, hardware vendors and other service vendors are all possibilities," she adds. During the identification process, H&R Block's IT senior leadership team looks closely at the potential partner's financials, backers, ongoing viability and the benefits it could bring to a partnership.

Benefits can include increased revenue for the company, new business opportunities for the vendor, or early insights into a vendor's new products or services. Partners can help companies by providing ideas and feedback that ultimately result in higher revenue for the company or by engaging in joint projects where revenue-sharing comes into play.

H&R Block is partnering with an early-stage company, Business Signatures Corp. (BSC), to drive a significant shift in its Web customer offerings. "We are working with BSC to understand H&R Block's business challenges, identify the key areas in which BSC can help and deliver products based on this understanding," says West. "The benefits to H&R Block are faster product feedback cycles and a much closer fit with respect to H&R Block business initiatives."

In return, BSC gets immediate feedback on products and features. "This model changes the relationship between a software vendor and customer into a living, evolving partner-

ship," says West. "We can call [BSC] CEO Peter Relan to provide advice and feedback, or request help. Likewise, Peter can call to suggest new ideas that may help us and to try out beta capabilities to get early feedback."

H&R Block helps its partners by thinking about other companies in the market that might be able to use particular products and services. H&R Block will visibly integrate its partners' offerings into its own products, participate in sales efforts by acting as a colead on sales calls, discuss products with other CIOs and play matchmaker by introducing the partner to other companies.

**"We should be able to generate at least one to five times in revenue for the money we spend on technology with our partners."**

—MARC WEST, CIO, H&R BLOCK

To assess the value of a partnership, H&R Block tracks metrics such as payments for closed leads to the partner and the level of integration of a partner's products in products that H&R Block resells to its franchises. "We treat partnership revenue as a joint P&L, with full disclosure on operating terms and conditions. I believe we should be able to generate at least one to five times in revenue value for the money we spend on technology with our partners," says West.

Managing a partner differs from working with a vendor or supplier. "There is a lot of brainstorming and idea generation between us and our partners," says Wilson. She says that an important step in a successful partnership is the creation of ground rules to make sure everyone is on the same page. These include roles and responsibilities, performance metrics, status reporting and conflict resolution. "What really sets a partner apart is that they wake up at 2 a.m. worried about H&R Block's revenue versus vendors who wake up worried only about their own," adds West.

—C.M.



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## New Requirements, New Approach

The software architecture designed by AptSoft is very unique. Commercial integration software and custom-coded solutions depend upon a predictable set of stable, linear business requirements, but by focusing on aligning today's unpredictable, dynamic, closed-loop processes, AptSoft took a different path.

"We realized that aligning complex processes involving fraud, compliance and cross-sell requires an approach that is flexible, fast, cost-effective and enables collaboration between systems, machines and people," says David Cameron, AptSoft's vice president of product integration, "and that is the opposite of what yesterday's solutions provide." So features such as a user interface that simplifies the authoring of complex event patterns and a unified metadata layer shared by all components are critical differentiators for CEP. Says Cameron: "We assumed a moving set of requirements, and built our software to enable our customers to execute against them successfully over and over again."

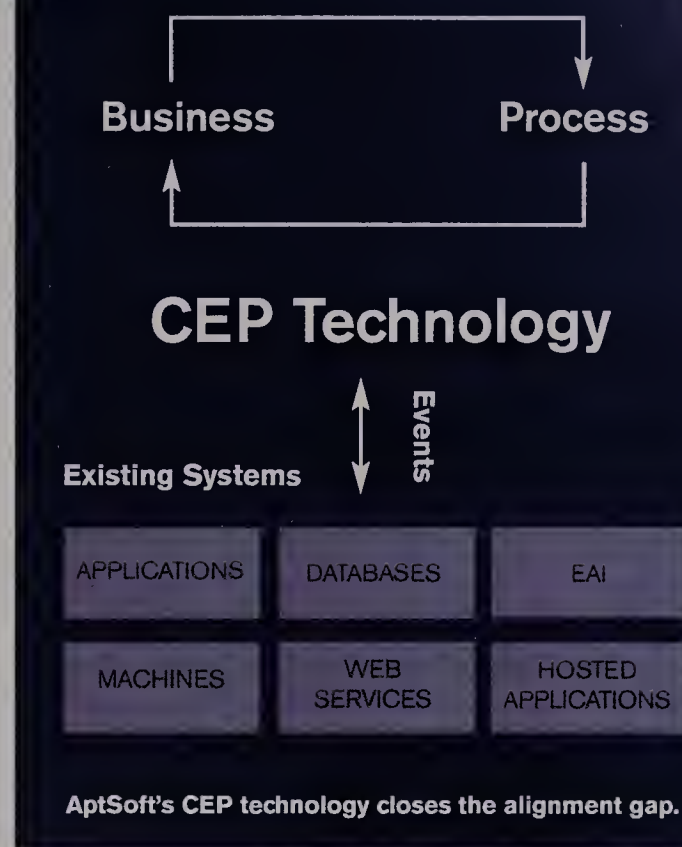
AptSoft CEO Frank Chisholm says that's why AptSoft's approach is so compelling and relevant to the objectives of today's CIOs. "A major paradigm shift is required for CIOs to support today's challenges.

That shift is represented by the emerging need for CEP technology to enable the seamless collaboration of existing elements of IT infrastructure in support of strategic objectives."

### Take the AptSoft Challenge

How serious is AptSoft about helping companies achieve business process/IT alignment? So serious that Frank Chisholm invites you to take the AptSoft Challenge. "Together, we identify a strategic business process with which to align your existing IT systems. We are so confident that we can deliver a working prototype in five person-days, that if we don't, we will pay for the IT resources assigned to this project for those days."

**Don't miss this chance to close the alignment gap at your organization. Visit [www.aptsoft.com/challenge](http://www.aptsoft.com/challenge) and take the AptSoft Challenge.**



## Case Study: Insuring Results

To bring in new business, an insurance company (which, for competitive reasons, prefers to remain anonymous) had set up a self-service Web site targeted at consumers. But results weren't measuring up.

So the company's CIO offered a number of vendors the opportunity to solve this strategic problem: Too little Web site traffic was turning into business, particularly in comparison with key competitors. That, in turn, was reducing revenues and marketing effectiveness.

Four specific problems needed to be addressed:

- A significant percentage of quote requests started online by consumers were simply abandoned incomplete. The company had no good method for trying to rekindle this business.
- When consumers submitted quote

requests for automobile insurance, if they failed to provide a vehicle identification number, the system would simply provide a default price based on the most expensive class of coverage—a luxury automobile, for example. This would often frighten off prospective customers, so the company wanted a timely way to indicate that providing the vehicle number would yield a more accurate and probably much more appealing price.

- When consumers claimed to have had no motor-vehicle violations for two or more years, the insurer needed to be able to seek clarification if its own information was at odds with this assertion.

- Finally, the company wanted an "upsell" mechanism allowing individuals to acquire additional coverage for a nominal charge.

Together, the four challenges involved the Web application itself, the call center infrastructure and the company's central database, which ran on an IBM mainframe.

Based on the compelling returns, the fast time-to-market and the flexibility AptSoft was able to demonstrate with its CEP technology, the company gave AptSoft the go-ahead to build a solution. David Cameron, AptSoft's vice president of product integration, says that once his team got the go-ahead, it took just two weeks to complete development. Within a week of going live, the system had already produced dramatic results. Indeed, in just one of the four functional areas—quotes in which the consumer failed to provide a vehicle identification number—the system delivered business from 2,000 new customers.



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# Invest, Don't Spend

Smart companies are strategically investing in IT



**George Steinbrenner**, principal owner of the New York Yankees, issued a terse news release as his team was mired in a losing streak early this season. "Enough is enough," said boss George.

Steinbrenner's admonition seemed to have worked, as the Yankees emerged from their slump, at least temporarily. (And went back into one shortly thereafter.) And his quote stuck in my head as I traveled across the country recently thinking about the future of our industry.

In Cambridge, Mass., at our May CIO Leadership Conference, I heard Harvard Business School Professor Warren McFarlan proclaim in his keynote: "This is the most exciting period ever for information technology. CEOs who think the dotcom boom came and went and now it is back to business as usual are dead wrong." I agree, Warren. Smart companies are investing in IT for strategic advantage.

On the flight to Las Vegas I read a *Fortune* interview with Carol Bartz, CEO of Autodesk. Answering a question about tech industry pessimism, Bartz said, "Five years after 2000, people either believe the tech industry is going to come back, or they have gone totally into a black mind-set that says it never will, and woe is us. The Chinese are optimistic, the Japanese are getting optimistic, and we are stuck in the mud. That is nonsense." Go Carol!

In Las Vegas, I heard Bob Suh, chief technology strategist for Accenture, say that while tech spending is rising, tech investments are not. According to Suh, spending is tactical while investments are strategic. Are you spending or investing?

On the flight home, I was reading Pulitzer Prize-winning author Tom Friedman's new book, *The World Is Flat*, and it synthesized all the above. Particularly the comment of one Chinese mayor who told Friedman, "Today, U.S. firms are the architects, and developing countries are the bricklayers. One day I hope we will be the architects."

Wake up, America! If our companies do not start soon to strategically invest in technology and a technically skilled workforce, we will be the bricklayers of the 21st century.

George is right. Enough is enough.

*Gary J. Beach*

Gary Beach, Publisher  
gbeach@cio.com

PHOTO BY WEBB CHAPPELL

## Case Study: Improving Loyalty Management at Circles

Circles™ Company Associates Inc., a Boston-based provider of loyalty-management solutions, recently seized the benefits of CEP by adopting AptSoft's Director series software.

Circles needed a way to quickly align its own applications with each client's changing business requirements. The company's entire value proposition is built around the real-time use of information to drive business processes. Its unique suite of concierge, personal assistance, and incentive and recognition services for the customers and employees of Circles clients provide a personal and memorable way to generate value from increased loyalty.

Through the use of key operational systems, Circles forges an ongoing dialogue, providing client organizations with an opportunity to learn more about their customers'

and employees' needs and preferences.

Circles' Personal Assistants then use these insights to offer personalized time-saving services.

Deb Ryley, vice president of IT at Circles, explains that clients are increasingly requiring Circles to rapidly integrate key loyalty-management processes with their own internal transactional systems and repositories.

"We had one client in particular where we were trying to automate customer verification," she says. "We wanted to reach into their system based on account numbers and pull that information into our Siebel CRM system." That member-verification process would then push the transactional data on the service request to Circles' customer automatically. The client required Circles to provide real-time Service Request data, and used AptSoft to pull, package and send the data to the

client's Web service, eliminating the need for Circles' service professionals to re-enter data into a separate system.

The challenge initially seemed daunting. "We are a small company, so we wanted something inexpensive with its own queuing system," says Ryley. And Circles wanted to avoid any impact on the process that the service professionals use within Circles itself from the translation and movement of data to a repository. "One thing that was appealing about AptSoft Director," says Ryley, "was that it was configurable in terms of creating simple business rules." Just as important, AptSoft came in and worked with Circles through deployment and testing. "The results have been impressive, and the system has been simple to maintain. We have had to make a few tweaks to the business rules and logic, but that has been easy," Ryley says.

"Achieving alignment—the execution of the right system or service, at exactly the right time, in exactly the right sequence, for the right business purpose—will fundamentally change how business is conducted. Corporate and IT agility requires alignment, which in turn requires a new approach designed specifically to close the alignment gap, CEP."

—Frank Chisholm  
AptSoft CEO

## High Impact Areas to Apply the AptSoft Challenge

Aptsoft's CEP technology is particularly valuable in areas where the processes are:

**Unpredictable and typically non-linear** (they are best defined using boundaries for "exception management," not discrete individual flows)

**Dynamic** (they contain business logic that changes frequently)

**"Closed-loop"** (they require the monitoring of outcomes to automatically respond to activity trends)

Examples include:

**FRAUD**- Detect and respond to fraudulent activity patterns, including identity theft, in real time, adapting quickly to new threats.

**COMPLIANCE**- Automate, verify, and report compliance with key processes by monitoring outcomes to detect and respond to exceptions.

**CROSS-SELL**- Identify and leverage patterns of customer behavior that reveal opportunities to cross-sell additional products and services.

For more information visit [www.aptsoft.com](http://www.aptsoft.com)



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**Michael Jones**, CIO for Circuit City, has embarked on an ambitious technology overhaul to reconnect with customers.

## 32 | COVER STORY CIRCUIT CITY REWIRES

**ONCE NUMBER ONE** in its market, Circuit City has been trying to catch up to Best Buy since 2001, or at least cement its position as a serious contender in consumer electronics retailing. Last year its top executives announced plans to turn the chain into a more customer-focused company. Circuit City's strategy hinges on a robust IT infrastructure that makes information readily accessible to the decision-makers who need it. The retailer is also upgrading its mostly proprietary point-of-sale system and building an enterprise data warehouse to replace siloed databases. In fact, everything the company is currently doing to improve its business—from developing more effective promotions to deciding which products should be displayed at the ends of aisles in stores—hinges on data. But none of this will be easy, and some analysts say Circuit City's turnaround effort has been hampered by stodgy leadership. *By Meridith Levinson*

## 44 | OPEN SOURCE ASCENDANT

**IN SUMMER 2003**, Mickey Lutz, CIO of Global Agency Solutions with Cendant Travel Distribution Services, did something that most CIOs would consider unthinkable: He moved a critical part of his infrastructure—a ticket pricing application—from the mainframe and Unix to Linux. He decided that the robustness of the hardware,



**Mickey Lutz**

software and support for open source had all crossed that invisible baseline that he and every other IT leader keeps in mind before adopting new technologies. The benefits of open source, Lutz now believes, finally outweigh the risks—both technical and legal. And although there were hiccups during the switchover, Linux has proved itself to be quite capable, and the cost benefits have validated Lutz's decision: Cendant pays almost 90 percent less for Linux than it did for Unix. *By Christopher Koch*

## 54 | DIGGING OUT FROM UNDER SARBANES-OXLEY

**UNLESS CIOs APPROACH THE SECOND** Sarbanes-Oxley IT audit differently from the first, chances are good that it will take even more time, cost even more money and cause even more pain. In the rush to meet the last audit deadline, many CIOs established more controls than were needed, which resulted in a lot of unnecessary work. That work may actually double this year as CIOs try to prove that those needless controls are indeed being used. So while last year CIOs had to assign someone to check an application audit log, this year, in order to pass the audit, they will need to be able to demonstrate that the check was performed regularly. The only way to do all this without crippling the IT department will be to automate as many controls as possible. The good news is that there's a burgeoning market of software that can help CIOs manage the audit process and automate individual controls. The bad news is that there isn't software yet that can do both. That means that CIOs will need to prioritize which controls to automate. In many cases this process will take years. But each control automated (or eliminated) means less work for the CIO, the IT department and even those #&%! auditors. *By Ben Worthen*

## 68 | I.T. ENERGIZER

**SOUTHERN COMPANY EXECUTIVE** Vice President and CFO Tom Fanning, a former CIO, explains in our "View from the Top" series why CIOs shouldn't



**Tom Fanning**

report to CFOs (it defines IT as a cost center when IT should be viewed as an integral part of the business); why outsourcing customer-touching functions is something he's loath to do (introducing a third party into a relationship also introduces risk); how a standardized IT infrastructure makes for a more mobile, flexible workforce ("we've taken the P out of PC"); and what he means when he says that he wants his CIO to provide him with information, not data. *By Richard Pastore*



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